

هكزامن العجول

FINANCIAL TIMES



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World Business Newspaper

WEDNESDAY MARCH 6 1996

UK abandons plan to lease F-16 fighters from US

The UK Ministry of Defence abandoned a plan to lease US F-16 fighters and will upgrade its existing Tornado fighters to fill a gap until the Eurofighter, being developed by Britain, Italy, Germany and Spain, comes into service. British Aerospace will be given a £1.25bn (\$1.925bn) contract to fit improved electronics to the F3 Tornado fighters which will allow them to carry the latest short and medium-range missiles. Page 12

RJR Nabisco tempts shareholders: RJR Nabisco, US tobacco and food group fighting efforts to force it into a break-up, tried to win shareholders' allegiance by announcing a 23 per cent increase in its dividend and a \$100m (£64.4m) share repurchase programme. Page 13

Tokyo move on bail-out impedes: Japan's government offered further talks with the main opposition party about a controversial plan to spend public money on bailing out bankrupt housing loan companies, or *fusen*. Page 12; Mad batter enters fray, Page 6; Editorial Comment, Page 11

UK told to reconsider deportation: British home secretary Michael Howard was told by a judge to reconsider the decision to deport Saudi dissident Mohammed al-Massaari (left). The judge ruled that Mr Howard had not established that Mr Massaari would be safe in Dominica, the Caribbean island to which he was due to be expelled. The government decided to deport Mr Massaari after pressure from the Saudi government, which had warned that arms deals could be jeopardised if the Islamic dissident remained in Britain.

Footsie hits intra-day record: The FT-SE 100 index recorded a record intra-day high of 3,792.5 in early trading because of hopes of a cut in base rates later this week and a strong performance by Wall Street on Monday. It closed at 3,771.1. London stocks, Page 26; World stocks, Page 30

BA attacks anti-trust moves: British Airways attacked Luftnabs of Germany and United Airlines of the US for deciding to apply for anti-trust immunity, saying it was contrary to the spirit of a more competitive airline industry. Page 4; BA to launch internal TV service, Page 7

Bridgestone in grand prix challenge: Bridgestone of Japan, the world's second-largest tyre maker, is to challenge Goodyear's tyre supply monopoly in Formula One grand prix motor racing. Page 4; Jaguar unveils E-type 'successor', Page 7

Beijing seeks to end budget deficits: China hopes to eliminate its budget deficit by 2000, but faces big challenges in boosting revenues and controlling expenditures, finance minister Liu Zhongli told parliament. Page 6

States face claims over EU laws: European Union governments must compensate individuals and companies for losses resulting from the states' failure to implement EU laws correctly, the European Court of Justice ruled. Page 12

Factory orders may boost US economy: The US Commerce Department said new orders for manufactured goods rose 0.5 per cent in January. The rise indicates that the economy may rebound this spring. Page 5

Kmart plans eastern Europe sales: Troubled US discount store group Kmart looks set to raise a badly-needed \$117.5m (£76.2m) by selling its 13 stores in the Czech and Slovak republics to UK retailer Tesco. Page 13

CS Holding 5% ahead: CS Holding, financial services group built around Credit Suisse, reported a 5 per cent rise in 1995 net income to SF1.4bn (\$1.2bn). Page 13; Lex, Page 13

Coles Myer drops break-up plan: Coles Myer, Australia's biggest retailer, said it would not pursue moves to break up the company into separately listed operating units. Page 13

Services lose their pictures: Britain's Ministry of Defence has "lost" 161 works of art from its inventory of 900. Some items are missing because military personnel often take office decorations with them when they move. Page 7

World Cup Cricket: South Africa had a 180-run victory over the Netherlands in Rawalpindi, Pakistan. West Indies cricket captain Richie Richardson announced he would quit international cricket altogether after the tournament.

Israel steps up war on Hamas

Troops enter West Bank and villages are put under curfew

By Julian Ozanne in Jerusalem, Mark Douie in Gaza and Patti Waldmeir in Washington

Israeli and Palestinian troops intensified their war on the Hamas Islamic movement yesterday amid international efforts to halt the worsening violence and save the Middle East peace process.

Israel dismissed the offer of a ceasefire ordered by dismayed Hamas political leaders and sent troops into the West Bank to seal the homes of suicide bombers and round up activists. Hamas factions have been responsible for a series of suicide bombings in Israel over the past 10 days which have left 57 people dead.

The Israeli government rejected the offer of a ceasefire, conditional on a halt to action against Hamas activists, following

the failure of two previous ceasefire calls by Hamas leaders.

Mr Shimon Peres, the Israeli prime minister, who is fighting for his political survival ahead of elections in May, banned Palestinians from travelling between self-ruled enclaves, and placed several villages under 24-hour curfew. "This is the beginning. They had their say, they'll get a response," he said.

President Bill Clinton of the US sent bomb-detection equipment and counter-terrorism experts to Israel yesterday as part of a US effort to buttress the country's security and provide reassurance. "The US has always stood with the people of Israel through good times and bad, and we stand with

other senior Palestinian officials warned that Israel's tough security measures could undermine the fragile peace and that collective punishment, such as house demolitions and travel bans, would breed resentment.

Mr Ahmed Qurie, chief Palestinian negotiator, said Israel's decision to give its forces freedom to strike at terrorists inside Palestinian controlled territory "will be a great mistake because it will weaken the Palestinian authority". Israeli officials said yesterday's military steps stopped short of a serious violation of Israeli-Palestinian accords.

Mr Michael Heseltine, the UK deputy prime minister, warned Hamas activists living in Britain that the government would not tolerate support for terrorism.

In Palestinian-ruled Gaza, Mr Mohamed Dahlan, internal security chief, said the self-rule authority was taking drastic steps to destroy Hamas politically and militarily.

A state of emergency was in force throughout the West Bank and Gaza Strip and security forces had started a manhunt for Israel's list of the most wanted activists. "We are trying to isolate Hamas from the people, control the mosques and stop their financing," said Mr Dahlan. But

Beijing's actions near Taiwan waters may cause severe disruption to shipping

US, Japan condemn Chinese missile test plans

By Laura Tyson and Peter Montagnon in Taipei and Tony Walker in Beijing

The US and Japan yesterday condemned plans by China to stage week-long missile tests in waters near Taiwan from Friday. Shipping companies warned of severe disruption to busy sea lanes in the region and Taipei share prices fell sharply.

Beijing's move comes in the middle of campaigning for Taiwan's first direct presidential elections, to be held on March 23. It also follows warnings that China might take military action if the election winner pushed for independence.

The missile tests will be closer to Taiwan than previous exercises in July and August last year, and appear designed to emphasise China's ability to blockade Taiwanese ports. The test areas are less than 50km from the ports of Keelung and Kaohsiung, the world's third largest container port.

In Washington, Mr William Perry, US defence secretary, attacked China's decision. "I think it is a very bad mistake on their part to put the impact area so near to Taiwan," he told the Senate armed services committee. "I deplore that decision on their part and I will express my concern to them [China]."

Premier Li Peng of China said that, while his country had been working for peaceful reunification, "we shall not undertake to

renounce the use of force". He was speaking in a state of the nation address to the opening session of the National People's Congress, China's parliament.

Mr Lee Tang-hui, Taiwan's popular president who is seeking a second term, sounded a note of defiance. "The question they [China's leaders] are most scared of is Taiwan's democratisation," he said. "If that democratisation is successful, the 1.2bn people on the mainland will think that if Taiwan can choose its own leader, then why can't the mainland?"

The Taiwanese government insisted that the elections would not be disrupted, but the defence ministry put forces on high alert.

Shares in Taipei tumbled 1.3 per cent yesterday, with the weighted index down 62.49 to 4,792.74. Mr Lien Chan, prime minister of Taiwan, said the election would not alter the ruling Kuomintang party's objective of achieving eventual unification.

Mr Hiroshi Hashimoto, Japanese Foreign Ministry spokesman, said in Tokyo that the Chinese missile tests would not be "desirable for peace and stability" in East Asia.

The official Xinhua news agency said that the People's Liberation Army would conduct surface-to-surface missile tests in waters of northern and southern Taiwan from March 9-15.

"For the sake of safety, the Chinese government requests the governments of relevant countries to notify ships and aircraft not to enter the said sea areas and air spaces during this period," Xinhua said. Mr Keyu Chou, London representative of the Yang Ming Line, a Taiwanese container group, said the need to steer clear of the missile tests "would have a big impact on shipping in the strait".



Military units marched in Beijing as the Chinese National People's Congress opened amid growing tensions with Taiwan

Shipping under threat, Page 6

Shipping under threat, Page 6

Shipping under threat, Page 6

First Brazilian rail concession sold to US-led consortium

By Jonathan Wheatley in Sao Paulo

Part of Brazil's national rail network was sold off yesterday in an auction marking the start of the most ambitious project under the government's privatisation programme.

A 30-year concession to operate 1,621km of track in the centre-west of the country was bought by a consortium led by the Noel Group of the US for R\$62.88m (US\$33.4m), a premium of 3.6 per cent over the minimum price of R\$60.2m.

The other members of the consortium are Western Rail Investors, Bank of America International Investment Corporation, Chemical Latin America Equity Associates and DK Partners. Both the Noel Group and Western Rail have made recent acquisitions in US rail services.

Mr Varel Freeman, managing

director of Chemical Latin, said the consortium would invest in modernisation to expand freight capacity. "We are extremely pleased to have won the concession and are looking forward to helping to modernise Brazil's railway operations," he said. "We see tremendous potential for expansion."

Brazil's railways are used almost exclusively for freight; cheap passenger travel is mostly provided by coach operators. Despite the country's large size, however, only about 7 per cent of freight is transported by rail, with most of the remainder being moved by road.

The whole network - the RFFSA - will be sold in six auctions and is expected to raise a total of about US\$1.4bn. Management of 3,000km of track will pass into private hands, along with 1,400 locomotives and 36,000 wagons. Modernising the net-

work will require investments of an estimated US\$4bn. The network has suffered badly from underinvestment in recent years; 47 per cent of its locomotives are out of service, against an international average of 17 per cent.

The Noel Group consortium beat off a rival bid by a consortium of Brazilian companies led by a subsidiary of state mining giant Companhia Vale do Rio Doce. Payment will be made in instalments, with a down payment of 10 per cent.

Payment is in cash, unlike earlier privatisations which allowed payment in domestic debt certificates. These were accepted at face value despite trading at discounts of up to 40 per cent.

Yesterday's sale will be followed on April 15 by the centre-east region, to be sold at a minimum price of R\$318.9m. Other dates and minimum prices have yet to be set.

STOCK MARKET INDICES

New York: S&P 500	5,693.04	(-2.89)
Dow Jones Ind. Av.	3,894.44	(-6.44)
NASDAQ Composite	1,701.32	(-1.37)
Europe: FT-SE 100	3,771.1	(+8.5)
DAX	2,478.03	(-13.37)
FT-SE 100	3,771.1	(+8.5)
Nikkei	20,193.87	(+119.99)

US LUMBER RATES

Federal Funds	5.5%
3-mth Treas. Bill	5.01%
Long Bond	9.1%
Yield	8.37%

OTHER RATES

UK: 3-mth Interbank	6.1%	(61.4)
UK: 10 yr Govt	8.7%	(86.1)
France: 10 yr Govt	10.4%	(105.0)
Germany: 10 yr Govt	8.7%	(87.5)
Japan: 10 yr Govt	6.43%	(68.38)

NORTH SEA OIL (Apr)

Brent 15-day (Apr)	\$17.71	(7.44)
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GOLD

New York: Comex	389.4	(385.2)
London: Gold	389.3	(383.0)

DOLLAR

New York: Archline	1.5295	(1.4794)
DM	1.4794	(1.4794)
FF	1.5295	(1.5295)
SFR	1.2021	(1.2021)
YF	185.056	(185.056)

STERLING

London: £	1.5276	(1.5229)
DM	1.4788	(1.4788)
FF	1.5295	(1.5295)
SFR	1.2021	(1.2021)
YF	185.126	(185.126)

Yield %

DM	2.2694	(2.2693)
Yield %	8.37%	(8.37%)

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Sharp Information

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UK issues warning on 'sham' EU unity

By David Buchan in Paris

Britain yesterday warned its European Union partners against seeking "sham displays of unity" in EU foreign and security policy, and instead proposed a series of practical measures to improve the preparation, flexibility and rapidity of EU decisions.

In a Paris speech setting out the line Britain will take on foreign and security policies in the intergovernmental conferences, Mr Malcolm Rifkind, the UK foreign secretary, effectively rebuffed the two main initiatives floated by France and Germany last week.

Paris and Bonn called for the Western European Union (WEU) defence organisation to be integrated into the EU, and for a new notion of "constructive abstention". Countries objecting to some EU foreign or security policy would simply stand aside and not block others from pursuing it.

Reiterating Britain's opposition to any "subordination" of the WEU to the EU, Mr Rifkind also told the French International Relations Institute that

"constructive abstention could be useful where a country supports a proposal but for constitutional or other reasons is unable to participate fully". He cited the case of Germany which, though unable to field peacekeeping troops in Bosnia, provided political and financial backing to others' forces.

But "constructive abstention", while it constituted a welcome admission that foreign or security policies could not be decided by majority verdict, would still not resolve real disagreements between EU members, Mr Rifkind said.

France, he suggested, would not have bowed to the anti-nuclear majority within the EU and abstained "constructively" by refraining from, or cutting short, its recent nuclear test series. "Dissenters cannot surely be expected to give political or financial support to the policies with which they disagree," said Mr Rifkind.

Mr Rifkind focused yesterday on practical ways of improving EU foreign and security policy decisions, just as a year ago the UK had proposed several practical steps to improve

WEU and EU co-ordination without merging them.

He suggested EU members should put more diplomats and money at the disposal of the Council of Ministers to make it better prepared for, and more responsive to, crises. He also gave qualified endorsement to France's proposal for a new EU foreign policy representative.

"Like France, Britain sees possible attractions in appointing a single figure to represent the foreign policy of the Union to the outside world," he said, though the person should be the Council's "servant, not its chairman". This hardly constitutes the high-profile appointment that Paris originally had in mind. However, France may be able to use it as a lever on Germany, which is proving reluctant to support the French idea for a new post.

In his Paris speech, Mr Rifkind played on France's recent nuclear disagreements with many of its EU partners to stress the risks of pushing EU ambitions in foreign and security policy too far.

Editorial Comment, page 11



Aznar may find opposition in his party to Catalan demands as González awaits the outcome

Kingmakers of Catalonia put a high price on the PM's chair

By Tom Burns and David White in Madrid

Catalan nationalists yesterday raised the stakes for helping the centre-right Popular party (PP) form a government after its narrow win in the general elections last Sunday by calling for a prior formal recognition of Catalonia's separate identity.

The demand, which runs counter to the PP's guiding principle of no discrimination among Spain's regions, underlined the acute difficulties facing the centre-right leader, Mr José María Aznar, as he searches for allies to enable him to win a parliamentary vote of confidence next month and become prime minister.

Mr Rodrigo Rato, the PP's parliamentary spokesman who has been appointed by Mr Aznar as chief negotiator with the Catalan nationalists, said that talks on creating a stable majority could take several weeks.

These negotiations have displaced discussions Mr Aznar had planned with trade unions - had he gained a clear electoral win - to establish a social pact for wage moderation and job creation.

The political uncertainty that resulted from Sunday's vote - the PP is 20 seats short

of a majority in parliament - prompted fresh falls on the Spanish stock market after shares prices tumbled on Monday. Madrid's general index lost 4.93 points yesterday, a fall of 1.5 per cent.

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Unity (CIU) coalition, which has run the Barcelona-based autonomous government, the Generalitat, for the past 16 years and strongly stamped its nationalist policies on the area, holds the key to a possible Aznar-led government.

The Socialist party, led by Mr Felipe González, the outgoing prime minister, and other leftwing parties gained 166 seats in parliament. Only the CIU can provide the centre-right with a working majority by adding the 16 members it returned to the Madrid parliament to the 156 elected on the PP lists.

The price for CIU support is, however, one that the rightwing in Mr Aznar's party could find impossible to pay. It involves the extension of the home rule process in Catalonia that Madrid-based conservatives feel has already gone far enough.

Mr Pere Esteve, a senior spokesman for the Catalan nationalists, said yesterday that the CIU's fundamental difference with the PP was over their respective understanding of what the "Spanish state" really was.

"Catalonia is a nation and its separate identity has to be recognised," Mr Esteve said. "The PP has never subscribed to this."

Bundeswehr finds itself short of conscripts

By Michael Lindemann in Bonn

The 340,000-strong Bundeswehr, Germany's armed forces, is likely to have "considerable problems" finding enough conscripts in future because a soaring number of young people prefer alternative forms of public service, Ms Claire Marienfeld, the Bundeswehr's ombudsman, says.

A record number of young male Germans - 160,559 - refused to serve 10 months in the armed forces last year, choosing to work in such alternatives as hospitals, even though the term is 13 months. The Bundeswehr could only fill its ranks by calling up older recruits who had not yet done their 10-month service, according to Ms Marienfeld's annual report.

Her warnings are likely to fuel discussions about the Bundeswehr's future following

a surprise French decision to opt for a professional rather than a conscript army. Ms Marienfeld insisted Germany stick to military conscription, popularly seen as "citizens in uniform", but that more should be done to improve the image of the armed forces.

She said the Bundeswehr should appear in school books which now make no mention of the armed forces. Soldiers should be encouraged to wear uniform more often, and exercise in the open countryside, out just on military bases. "A Bundeswehr which makes no noise at all is no good," she told a press conference.

"Young people had an unacceptably negative image of the Bundeswehr," Ms Marienfeld said she had begun talks with a number of churches after it emerged that one church had offered all the young people in its parish help that bordered

on a "recommendation" to refuse armed service.

The ruling coalition last week approved a draft bill to fine or to jail for up to three years those who insult the army. The bill follows conservative outrage at court decisions endorsing anti-war protesters' right to use the slogan "Soldiers are murderers".

Despite the numbers opting out, the Bundeswehr's standing has improved partly because German soldiers had a greater role in international peacekeeping such as the mission in former Yugoslavia.

The report also highlights the problems of German soldiers serving in multinational units such as the Strasbourg-based five nation Eurocorps. Because French law forbids German soldiers to be armed in France, Germans doing sentry duty at the Strasbourg barracks were armed with sticks.

EUROPEAN NEWS DIGEST

Moscow drops share tender

The Russian government will retain state control of Rybinsk Motors, overturning a plan to tender 37 per cent of the troubled engine manufacturer's shares after a potential foreign buyer withdrew. The decision is a further indication of the change of government thinking about the country's controversial privatisation programme and suggests the state may be planning to play a more active role in supporting strategic industries.

Mr Alexander Kazakov, the newly-appointed privatisation chief, had already indicated that he would slow Russia's privatisation programme drastically, and would aim to manage state property more effectively. Only five companies - out of an original 30 - remained on the privatisation list for this year, Mr Kazakov said.

Rybinsk Motors, one of Russia's biggest manufacturers of aircraft engines, was declared insolvent last year. It has fiercely opposed the government's privatisation plans, claiming that they threaten the country's strategic interests.

Gazprom, Russia's giant gas monopoly, has expressed an interest in the plant, believing its technology could be adapted to produce gas turbines.

John Thornhill, Moscow

German health system in red

Germany's health insurance system ended last year with a DM7bn (\$4.7bn) deficit last year, after a DM2.4bn surplus in 1994, prompting fears that contributions may have to rise unless savings are made.

Mr Horst Seehofer, the health minister, warned that contributions, divided equally between employers and employees, could jump by one percentage point to 14.4 per cent of earnings unless agreement is reached between the federal government and the Länder (states) on disputed plans to limit the costs of hospital care.

Last year's deficit was lower than the DM10bn-DM12bn recently forecast by health insurance officials. Mr Seehofer said the move into deficit slowed markedly in the final three months, with the 1995 shortfall in western Germany dropping to DM4.15bn from DM6.8bn at the end of September. However, the deficit in eastern Germany grew to DM2.85bn from DM1.7bn in the first three quarters.

Peter Norman, Bonn

Poland's pension plans

Poland's planned new pension funds will be endowed with only minority stakes in state-owned companies under the government's social security system reform plan, according to Mr Wiesław Kaczmarski, the privatisation minister. "Funds' stakes will be passive ones," he said yesterday, saying that only financially sound companies would be earmarked to assist the social security reforms.

The finance and labour ministers have promised to prepare a bill on the new pension funds during the first six months of this year, and the outline of the government's social security reform awaits a debate in parliament.

Under the scheme, the funds, contributions to which would be tax-deductible, would relieve the government of part of the burden of subsidising pensions and disability benefits, which consume more than 20 per cent of the national budget each year.

Reuter, Warsaw

Stalin fondly remembered

Mr Georgy Buzikashvili, a curator at the Joseph Stalin museum in Gori, Georgia, the former Soviet dictator's birthplace, sheds a tear on the 43rd anniversary of his death. More than 200 Georgians staged a rally to commemorate the anniversary of a man responsible for the murder of millions of Soviet citizens. "As long as Gori still exists, Stalin will live," said one octogenarian. "He was a great man, a kind man. He had no minuses."

Peter Graft, Tbilisi, AP

Russian arms exports soar

Russia exported \$3bn worth of arms last year, an 80 per cent increase over the previous year. Mr Oleg Soskovets, first deputy prime minister, said yesterday. Mr Soskovets, speaking at a meeting of the government's council for co-operation in military technologies, said that revamping the country's military marketing systems was paying off.

He told the council that arms sales were a good source of hard currency for Russia. He said 75 per cent of the arms deals were in cash, from 51 countries. Officials have already said that Russia hopes to sell as much as \$3.5bn worth of arms this year.

AP, Moscow

France to aid clothing industry

The French government yesterday announced a FF27bn (\$400m) a year aid plan for textile, clothing and shoe companies, hard hit by cheap imports especially from Italy. But the European Commission signalled its opposition in principle to such support, and warned that the plan would need its approval.

The plan would reduce employers' social security charges for lower-paid workers and increase the government contribution towards the cost of putting employees on part-time work. In return, companies would have to commit themselves to maintaining jobs and to hiring more young people. But the Commission said it preferred general job-creation schemes to sectoral ones.

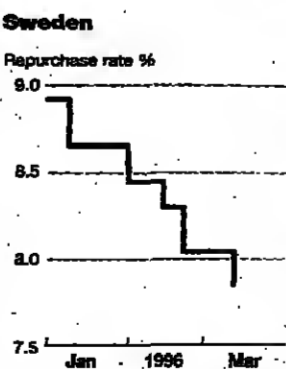
David Buchan, Paris

ECONOMIC WATCH

Key interest rate cut in Sweden

Sweden will qualify for European monetary union in 1997 despite slower economic growth this year, Mr Göran Persson, the finance minister, predicted yesterday. His forecast came as the central bank, the Riksbank, lowered its key interest rate for the fifth time this year. The cut lowers the bank's repurchase rate to 7.85 per cent from 8.05 per cent, a fall of 1.06 percentage points over two months. Mr Persson, who is set to take over as prime minister from Mr Ingvar Carlsson in two weeks' time, said the finance ministry would soon lower its forecast for growth this year from its most recent prediction of 2.7 per cent. Independent forecasts set the figure at less than 2 per cent. With inflation under control, the authorities are keen to stimulate growth to tackle high unemployment. Mr Persson said he expected further interest rate cuts.

Christopher Brown-Humes, Stockholm



Oil may smooth way for Karabakh peace

By Bruce Clark, Diplomatic Correspondent



Pressure is mounting on Armenia and Azerbaijan to settle their bitter dispute over the enclave of Nagorno-Karabakh so as to clear the way for a broader resolution of energy and transport issues in the strategically vital region.

Mr Yevgeny Primakov, Russia's foreign minister, has thrown Moscow's weight behind a high-profile effort by the 53-nation Organisation for Security and Co-operation in Europe to settle one of the most bitter wars on ex-Soviet

territory. He praised as "good and well-balanced" a draft peace plan which was presented to both sides this week by Mr Flavio Cotti, the Swiss foreign minister, whose country occupies the OSCE's rotating presidency.

Mr Primakov, in the latest sign that Russia is edging away from its hitherto pro-Armenian position, called the plan a "compromise between extremes" and deplored the fact that both sides were "sticking to maximalist positions."

Details of the OSCE plan have not been disclosed, but it

is assumed to provide a substantial measure of self-rule for the Armenian-populated enclave of Karabakh, while recognising the ultimate jurisdiction of Azerbaijan.

Armenian forces managed in 1993 to secure control both of Karabakh, which has proclaimed independence from Azerbaijan, and large swathes of surrounding territory. Azeri forces surround their defeat on covert Russian support to the Armenian side.

The OSCE agreed in December 1994 to deploy a multinational peacekeeping force in the region - but only if the de

facto ceasefire was turned into a formal cessation of hostilities, something which has proved unexpectedly elusive.

Up to now, sticking points have included the status of the Lachin corridor, which links Karabakh with Armenia and the strategic town of Shusha, the highest point of the mountainous enclave.

Azerbaijan has said it would accept a multinational force in Lachin, with a mandate to stem the flow of armaments to the Karabakh Armenians, but not the continuation of de facto Armenian control.

Turkish officials and busi-

nessmen have added their voice to calls for an early settlement - on the grounds that peace in Karabakh is a pre-condition for the establishment of Ceyhan in southern Turkey as the main terminal for the oil which will soon start flowing from the Caspian Sea in huge quantities.

A settlement of the conflict, in which at least 20,000 people have been killed, is needed both to inspire confidence in the western companies which would build and finance the pipeline, and because the war zone itself is one of the most promising routes.

Italian film mogul projects bigger image

The Rome apartment of Vittorio Cecchi Gori doubles as a cinema, entirely in keeping with his status as Italy's biggest film producer and distributor.

The partition wall with the dining room serves as a screen; the black velvet divans are turned away from a magnificent view of the ancient city to become front stalls; and from behind a desk a Tibetan

scroll painting lowers automatically to reveal a projector.

The stocky Mr Cecchi Gori, 53, is responsible for producing three-quarters of all films made in Italy, thanks to a business built by his father, Mario, who died in 1993. Films are his first passion and the core of the Cecchi Gori group's L270bn (£113m) turnover.

But he has big ambitions well outside the film business. This he has just demonstrated by scooping the television rights to Italy's league soccer for the next three years for L630bn from beneath the nose of the Rai state broadcaster.

Football, he hopes, will secure a good audience share for Telemontecarlo and Videomusic, two small channels he bought last year.

On his own admission he is riding the crest of a wave. "This is a wonderful period for me," he confessed last weekend after winning the TV football rights. "My heart is set on winning the Oscar for *Il Postino* which will be decided on March 25. ... Then I've won the football on TV; my own television stations are taking off and Fiorentina (the football club he owns) is in great form."

He has always lived so much in his father's shadow that it has only been possible for outsiders to measure the size of his ambition in the past two years. The evidence has gone surprisingly unrecognised in the Italian press.

He acquired Fiorentina in



Vittorio Cecchi Gori: ambitions well outside the film business

venture, but they have since fallen out in a big way.

It goes without saying that some of the harshest attacks on Mr Cecchi Gori's football coup have come from the Berlusconi camp (which also lost out in the bidding). They accuse Mr Cecchi Gori of backing the political ambitions of Mr Lamberto Dini, the caretaker prime minister, and of being protected by the government. He has also been accused of using his own channels to defend his acquisition of the soccer rights. And a consumers' group has complained that, as owner of a major league team, Mr Cecchi Gori was both judge and beneficiary of the rights auction that could be worth L1,251bn over the next three seasons.

The 38 clubs in the football league appear to have made their choice on cash alone, opting for the highest sum on offer. Mr Cecchi Gori's two channels cover only 75 per cent of the mainland and islands, and accounted for only 2.7 per cent of the total television advertising revenues of L3,555bn last year. Videomusic, which specialises in youth programmes and music, and Telemontecarlo, a general channel, generated total income of less than L150bn in 1994.

The Rai claims such small fry lack the technical and financial resources to serve the Italian public with their most popular sports fare.

Mr Cecchi Gori sees matters

differently. He has acquired two television concessions cheaply: he paid little more than L150bn for the loss-making channels, and assumed some L100bn more in debt, pushing group indebtedness to L220bn. Most of the Telemontecarlo purchase was funded with a L60bn bank loan guaranteed by the station's shares and financed through cash flow from his group controlled through the family holding Finma which made a net profit of L25bn in 1994.

To raise his share of the market, Mr Cecchi Gori is exploiting his film library, the biggest in Italy. Not needing to invest in what is normally a costly part of Italian channels' annual budgets allows him to splash out on sport which he regards as crucial for boosting audiences.

With good films and top quality sport, he reckons to raise his share of the audience to 10-15 per cent. If Mr Berlusconi's three channels, with 45 per cent of the audience, have been valued at around L7,000bn, then Mr Cecchi Gori's unprecedented spending on football rights is easier to understand.

But he will have to sell on some local rights, ensure national territory is covered, and probably tie up a deal with a foreign partner. Otherwise he will be vulnerable in a market that he is helping to make more competitive.

Robert Graham

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hungry
 in talks
 on tariffs

Study points to market-driven solutions for loss-making national network

French railways report angers unions

By Andrew Jack
in Paris

One of the unions behind last year's French train strikes yesterday attacked a government report on the future of the railway system for its "liberal vision of free competition, social sacrifices and deregulation".

The Communist-backed CGT, with many railway workers among its members, helped lead the demonstrations which paralysed the country last November and December. It accused the report of "forgetting the strike".

Its reaction - and that of the more moderate CFTD union, which raised questions about "uncertainties" in the document - suggests there will be fierce debate in the run-up to the signing of a new contract this summer between the SNCF railway company and the government.

The conclusions of a working party set up by the government and chaired by Mr Claude Martinand, head of economic and international affairs at the transport ministry, were published on Monday. Summarised as "20 questions for debate", the findings will

be at the centre of intense discussions over the coming months.

While offering no answers, they are clearly pointing towards more market-driven solutions in the future.

The subject is particularly topical because the state-controlled SNCF issued its 1995 results only at the end of last month. They showed a loss of FF16.6bn (\$3.3bn), more than twice the 1994 level, with turnover down 3.9 per cent and gross operating margins 20 per cent lower than in the previous year.

The SNCF was due to agree

with the government last December a new contract setting out its objectives for the coming years. But ministers' attempts last November to remove the early retirement rights of train drivers as part of its social security reforms confused the debate, and the contract was postponed.

Ms Anne-Marie Couderc, junior minister for transport, stressed in a recent interview that the Martinand report would form the basis for discussions ahead of the new contract, in accordance with union demands and a decision by Mr Jean Mattéoli, the negotiator

appointed to help resolve the strikes last year.

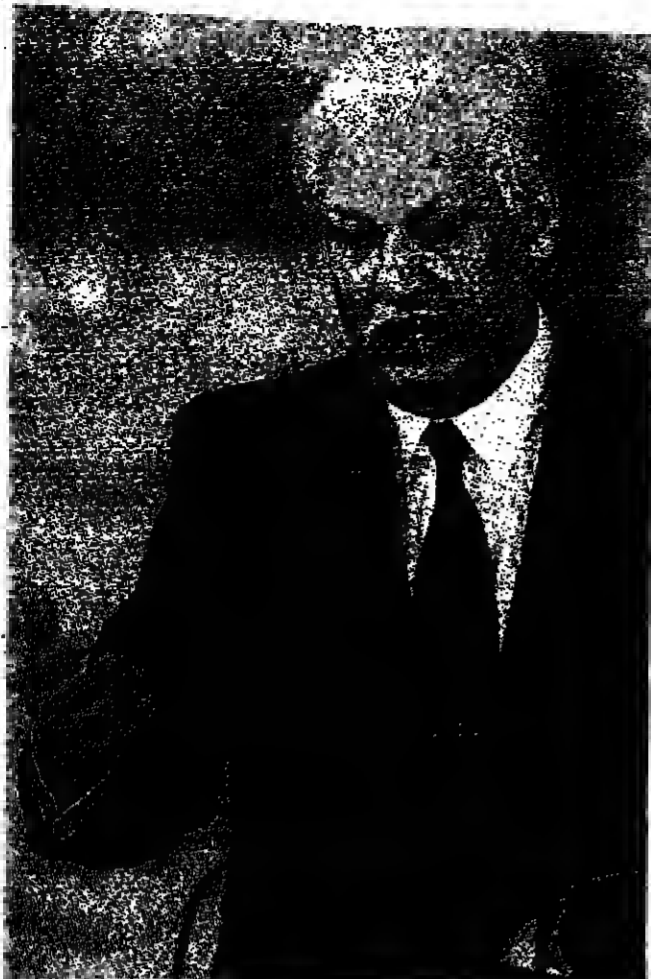
The report says the strength of the railways in the nineteenth century has declined in the face of the growth of car travel, the rise of individualism and the evolution of society.

It questions the relationship between the state, regional authorities and the SNCF, and asks whether there should be greater autonomy at the local level. It suggests it may be necessary to define a maximum grant - such as FF1 per passenger-kilometre - for expenditure in the interests of regional

development.

It discusses reforms to pricing, corporate organisation and performance indicators such as service quality, financial results and productivity. It also calls for consideration of ways ensure that current high levels of debt are avoided in future.

The report suggests that the French railway system is in better shape than many of its counterparts in other countries, but that in absolute terms it remains worrying. It points out that despite heavy investment usage is declining and operating deficits are increasing.



Yeltsin addressing workers in Moscow yesterday. He told them "unscrupulous" foreign imports were ruining local producers.

Vote-hungry Yeltsin talks tough on tariffs

President Boris Yeltsin is nothing if not flexible. Yesterday he provided a classic example of a politician's ideological ambivalence when he promised to protect Russia's domestic manufacturers while claiming credit for the undoubted benefits his liberalising trade policies have produced.

Mr Yeltsin's decision to bang the protectionist trade drum appears part of a campaign to turn up the volume of nationalist rhetoric ahead of June's presidential election.

In an address to industrial workers in Moscow, an agitated Mr Yeltsin denounced a "fence of anti-dumping measures" blocking Russian textiles from the European market and conceded his government had allowed "unjustified freedom" to low-quality foreign imports.

"We cannot continue to put up with a situation where our own producers are ruined and foreign manufacturers, includ-

Domestic film industry attracts growing loyalty

By Andrew Jack in Paris

The French were more loyal to their own country's films in 1995 than during any year since 1990, according to figures released by the ministry of culture yesterday.

Nearly 46m cinema-goers last year out of a total of 130m went to see French films, giving its own productions 35.4 per cent of the market, compared with just 28.2 per cent in 1994.

That came against a backdrop of

cinema attendances up 4.1 per cent, and cinema receipts up 5.1 per cent to FF4.5bn (\$860m), despite a modest rise in the average ticket price from FF34.46 in 1994 to FF34.77 last year.

Seven of the 15 most widely-viewed films during the year were French, while the share of US films dropped from 60.5 per cent to 54.2 per cent. The previous highest market share held by French films was 37.5 per cent in 1994.

The news will boost the country's

film industry, which has long been frustrated by the dominance of US films, despite its small share of the US market.

Mr Philippe Douste-Blazy, minister of culture, said much of the success was due to comedies, including *Les Anges Gardiens*, *Gazon Maudit*, *Les Trois Frères* and *Le Bonheur est dans le Prê*.

He also highlighted the popularity of films such as *Le Hussard sur le Toit*, *Elisa* and *La Boite*, a portrayal of life in a troubled Parisian suburb

which has received critical acclaim in France and elsewhere.

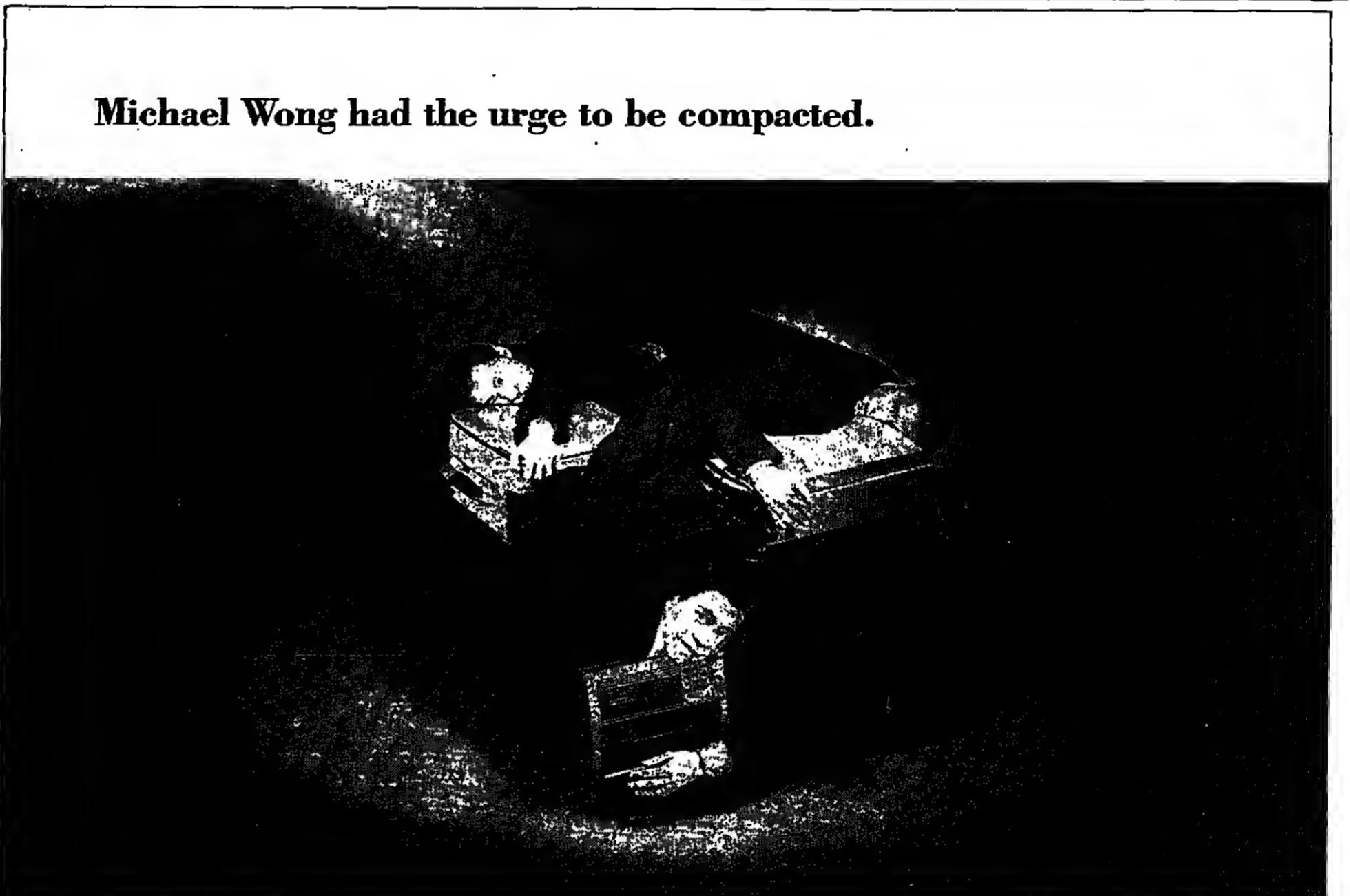
France provides financial incentives to help the national film-making industry, including redistribution of part of the income from cinema tickets and a requirement for television companies to fund and broadcast the country's own films.

It has been at the forefront of the battle to introduce quotas elsewhere in Europe, and has also helped to support the country's cinemas by restricting the days on which televi-

sion stations can broadcast films, so they do not conflict with the days when new films are released.

Recognising that the French language limits its attraction in English-speaking and other foreign markets, it is discussing more widespread use of dubbing. Subtitled films only ever reach a minority audience.

The national figures hide considerable regional variations. While cinema-going has risen outside Paris, the nation's capital has witnessed a decline since 1990.



Michael Wong had the urge to be compacted.

Michael Wong of Creative Pacific had a vision. A computer work station that squeezed component space down to nothing while, at the same time, increasing productivity.

So he went to Taiwan where an interesting company, Plustek, showed him its newest idea: a color fax machine, color photo copier, scanner and OCR, all designed in a one-button unit no larger than a shoe box.

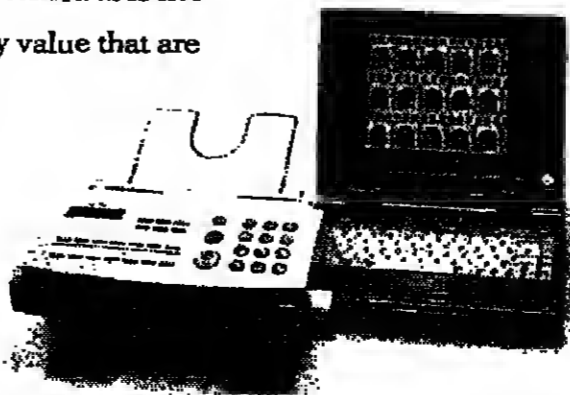
Creative Pacific decided to sell it in Australia, but in 30 other countries it is marketed as the Scanfx, the world's most complete multi-function scanner.

Scanfx is a perfect example why companies today like IBM, Hewlett Packard, Apple Computer and AT&T are heading for Taiwan. The attraction for them is INNOVALUE: innovation in design and manufacturing techniques which gives added-value to leading edge products.

Innovalued produced the first low-cost carbon fiber bicycle. And a new sophisticated PC video and audio editor for less than four hundred dollars.

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Plustek's versatile Scanfx workhorse occupies very little space next to another National Award winner, Twinhead's Slim Note-890CD computer.

John Thornhill examines the import of the growing protectionist mood in Moscow

ing unscrupulous ones, are encouraged," he said.

Mr Yeltsin's latest outburst confirms a growing protectionist mood in Moscow.

The agriculture ministry has threatened a permanent ban on US chicken imports, saying their poor quality endangers Russians' health. The claim has provoked outrage from US congressmen - and incredulity among Russian consumers, reared on many domestic birds.

Moreover, Mr Vladimir Pavlov, finance minister, last week called for a 20 per cent average increase in import tariffs on a range of foreign goods, including cars and alcohol, to help rectify a budget shortfall.

That prompted a rebuke from European Union officials who warned that any such move could jeopardise a future free trade pact, and dash Russia's ambitions of joining the World Trade Organisation.

But, as the political heat in Moscow rises, it is becoming increasingly difficult to distinguish between pre-election tub-thumping, crude protectionism, and legitimate economic and public policy concerns.

Despite the worries in western capitals, it would be premature to suggest Russia intends to abandon the liberalised trade regime it embraced in 1992 following 70 years of economic autarky.

Yet Mr Yeltsin is doubtless mindful of the political juices that can be squeezed from attacking cheap foreign imports and protecting domestic producers.

The most visible consequence of Russia's trade liberalisation has been to encourage an influx of consumer goods rarely seen in Soviet times. A new generation of rich Russians now go shopping in their German cars to buy Dutch vegetables which they eat in front of their Japanese televisions.

Even the less well-off buy Swiss chocolate bars, Vietnamese T-shirts, and Turkish leather jackets from the thousands of informal traders who have colonised many street corners.

But many Russians already take the availability of these goods for granted and appear affronted by displays of conspicuous consumption.

A chorus of communists, nationalists, and Orthodox church leaders has been complaining about the deluge of western consumer product advertising - rarely in Cyrillic script - saying it makes them feel like foreigners in their own land.

Such sentiments have been exploited by some of Russia's industrialists to justify protectionism. Intense lobbying from domestic car producers, for example, led to the government imposing heavy tax increases on foreign cars, more than doubling the price of many imports.

But, as yet, there is little evidence that the biggest Russian manufacturer, AvtoVAZ, maker of the Lada car, has benefited from this breathing space. Rather, it appears simply to have pushed up its own prices, postponing the day of reckoning when it has to tackle its unwieldy cost base.

But in some areas of Russia's trade policy, there is undoubtedly scope for a more active government role. Even some enthusiastic free-market economists argue trade liberalisation has gone too far in some instances.

"If you take the case of alcohol then there is clearly a good argument for raising import tariffs," says Mr Andars Ashland, a former adviser to the Russian government who now works at the Carnegie Endowment for International Peace. "The influx of cheap vodka has messed up Russia's taxation system and punished their own producers, which makes no sense."

Perhaps the most startling point about Russia's trade, somewhat lost in the political clamour, is the extent to which liberalisation has already begun to transform large sectors of the Russian economy.

Many Russian manufacturers appear to be moving themselves towards the world market with astonishing speed. Last year, Russian exports to countries outside the Commonwealth of Independent States rose 25 per cent to \$64.3bn - equivalent to \$500 a head.

The bulk of these exports is still accounted for by unprocessed raw materials and oil and gas but some of the fastest-growing sectors are aircraft, plastics, electrical and mechanical machinery and furniture, suggesting some Russian manufacturers are successfully adapting to the new market conditions.

Despite the surge in imports, Russia has been running a comfortable trade surplus for the past few years and has been opening up new markets in the fast-growing countries of the far East.

The chief threat now is that the rapid real appreciation of the rouble against the US dollar since last summer will take the steam out of this export growth and lower the relative cost of imports, although even that would help Russian exporters retool.

NEWS: WORLD TRADE

BA attacks US-German anti-trust move

By Michael Skapinker, Aerospace Correspondent

British Airways yesterday attacked the decision by Lufthansa and United Airlines of the US to apply for anti-trust immunity...

Mr Robert Ayling, BA chief executive, said: "What Lufthansa wants to do is reduce the level of competition by relaxing the anti-trust laws."

The US-German agreement follows open skies accords between the US and nine other European countries.

"We have never had the slightest difficulty competing with Lufthansa."

Mr Ayling said, however, that the US-German pact would make no difference to the UK's position. He said:

Major steps up pitch for east Asia investment

By John Kampfner and John Burton in Seoul

Mr John Major, Britain's prime minister, yesterday stepped up his pitch for investment in the UK by the emerging economies of east Asia...

Electromechanics, Sung Kwang Electro Mechanics and Poong Jeon will supply parts to Samsung...

Mr Major also took part in signing ceremonies for four deals between British and South Korean companies...

The economic reforms which I have described have increased an enterprise economy in the UK...

Mr Major also took part in signing ceremonies for four deals between British and South Korean companies...

Mr Major announced that three further South Korean companies had chosen to set up operations in the UK...

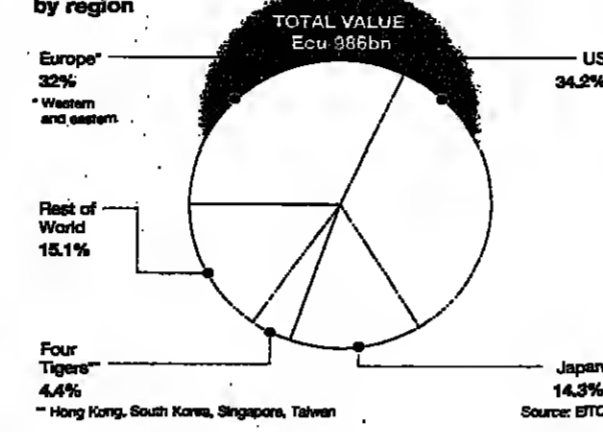
The UK could see considerably larger Korean investment in the near future...

European increase of 8.3% last year with 'striking' rise in network markets IT growth strongest for 5 years

By Paul Taylor

The European information and communications technology market grew by 8.3 per cent last year to Ecu304bn (\$380bn), its strongest growth for five years...

Information and communications technology



Germany is the biggest IT market in Europe with a 25.4 per cent share of the total.

Mr Ayling said, however, that the US-German pact would make no difference to the UK's position.

Professional services also outperformed the overall IT market, growing by 8.3 per cent...

The western European telecommunications equipment and services market grew by 8.7 per cent last year...

The market for telecom services in Europe totalled Ecu132bn last year and grew by 10.1 per cent...

Overall, IT hardware revenues increased by 8.8 per cent last year...

NEWS: INTERNATIONAL

Hamas threatened by its own divisions

The military wing is acting against the goals of the political wing, writes Julian Ozanne

The spate of bombings in Israel by Islamist fanatics has brought to a head a crisis inside the extremist Hamas movement...

leadership and announced a conditional ceasefire until July, halting all attacks if Israel agreed not to attack its activists.

against Hamas' activities abroad, particularly in Jordan, Syria and the US.

According to senior diplomats, US President Bill Clinton on Monday sent strongly worded letters to Mr Arafat...

Jordan is the most likely first step for a move against Hamas. Mr Ibrahim Ghoshe, a prominent Hamas leader...

divided will be a much greater threat to peace and security than Hamas united.



Stopping traffic: An Israeli army reservist mans a roadblock between the West Bank and Jerusalem.

African nations set to outlaw nuclear weapons

By Frances Williams in Geneva

Government leaders and ministers from all 53 African countries are set to sign a treaty outlawing nuclear weapons throughout the continent next month.

They have not yet given a firm response to their invitations to next month's ceremony in Cairo...

African diplomats said yesterday they hoped the accord, which was drafted with United Nations support...

Mr Sola Ogunbanjo, a UN official who advised on the treaty, said the first moves towards denuclearisation of Africa in the early 1960s were sparked by French atomic tests in the Sahara desert.

The African Nuclear-Weapon-Free Zone Treaty, also known as the treaty of Pelindaba, is the third regional pact banning nuclear weapons...

Subsequent progress was blocked by South Africa's bid to become a nuclear power.

In addition, the five declared nuclear-weapons states - the US, Russia, France, Britain and China - have been asked to

sign two treaty protocols guaranteeing not to attack treaty members with nuclear weapons or to carry out nuclear tests in the region.

Olympic committee sacks marketing group Sydney games chief quits

By Norma Cohen

The International Olympic Committee has sacked ISL, its long-line marketing and promotions company.

Revenues raised by the IOC for this summer's Atlanta Games include more than \$1bn from the sale of sponsorship rights and \$1.4bn from the sale of broadcast rights.

Mr Michael Payne, marketing director for the IOC in Lausanne, said that after the Atlanta Olympics this summer, ISL will not handle either sponsorship services...

Mr Gary Pemberton, chairman of Woolworths, one of Australia's biggest retailers, and also of GIO Australia, the insurer.

Mr Pemberton will be replaced by Mr John Iffe, chairman of Woolworths, one of Australia's biggest retailers...

The move ends a 13-year relationship with a company which has engineered the IOC's transformation from a financially strapped organisation to a body with revenues equal to some multi-national corporations.

ISL, based in Lucerne, Switzerland, handles promotions and marketing for some of the world's leading sporting organisations including Fifa, football's governing body, and the International Amateur Athletics Federation.

He said the IOC had reviewed its relationship with ISL because both corporate stances and the individual national Olympic committees have

become more sophisticated about the marketing potential of the Olympic brand name.

Mr Pemberton will be replaced by Mr John Iffe, chairman of Woolworths, one of Australia's biggest retailers...

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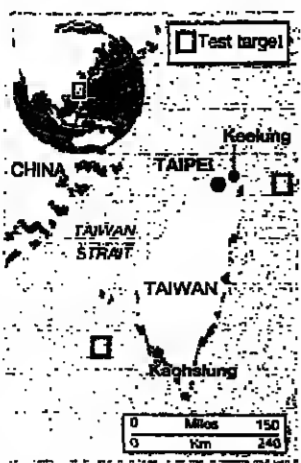
Mr Pemberton will be replaced by Mr John Iffe, chairman of Woolworths, one of Australia's biggest retailers...

liba trade... to spur... action... orders... to boost... economy

Missiles put Taiwan shipping under threat

By Peter Montagnon and Laura Tyson in Taipei and Charles Batchelor in London

With the announcement yesterday of missile tests close to Taiwan's two largest ports, China is turning the heat on Taipei rather than had been expected before the March 23 presidential election. While China had already threatened to conduct tests, they had not been expected to put trade at risk.



ensure normal sea and air transport. The closure of an air corridor used for 30 flights a day between Taipei and Japan, Australia and the US will add perhaps 10 minutes to flying times. Traders say the most visible effect of the tests could be on shipping.

Military activity in the Taiwan Strait would seriously disrupt shipping and could have a knock-on effect on the two large container terminals at either end of Taiwan, shipping experts warned.

the affected ports of Kaohsiung and Keelung, and other ports are too small to take the strain. This could seriously disrupt trade in March, but exporters' larger fear is that their order books will dwindle as customers fret about Taiwan's future ability to meet delivery dates.

The strait is on the direct route for tankers, dry-bulk carriers and container vessels sailing from Singapore and Hong Kong to Shanghai, South Korea and the Japanese ports. "All the biggest shipping lines use the Taiwan Strait," said Mr Keny Chou, London representative of the Yang Ming Line, a Taiwanese container group. "It would have a big impact on shipping in the strait."

Many cargoes destined for Chinese ports are transhipped from ocean-going vessels in Hong Kong and then moved up the Chinese coast through the Taiwan Strait. "It is a very busy route," said Mr Chris Horrocks, secretary general of the International Chamber of Shipping in London.

Shipping in the strait already has to take account of strong currents and shallow waters. Navigation can be difficult in the typhoon season with little room to manoeuvre a large ship. Tankers use the



Camouflaged troops on Taiwan's Quemoy island yesterday

strait to reach offshore mooring bays at the northern tip of Taiwan and container ships serving Kaohsiung to the south and Keelung to the north of the island also pass through it. Kaohsiung is the world's

third largest container port after Hong Kong and Singapore, handling 4.6m containers in 1993, according to Containerisation International Yearbook rankings. Keelung ranked 13th at 1.8m containers.

Beijing to try to end budget deficits

By Tony Walker in Beijing

China will seek to eliminate its budget deficit by 2000, but faces big challenges in boosting revenues and controlling expenditures, Mr Liu Zhongli, finance minister, told the opening session of China's parliament yesterday.

Mr Liu forecast a budget deficit for 1996 of Yn61.4bn (\$7.4bn) or about 8 per cent down on last year's budgeted figure. But he said the "deficit is still rather large and debt too heavy".

He blamed tax evasion and fraud, unpaid taxes by struggling state enterprises and excessive spending on wasteful capital works projects for China's continuing budgetary difficulties.

China, he said, "must tighten the collection and management of taxes, oppose all forms of extravagance and waste, and strive to reduce the deficit by taking measures to increase sources of revenue and reduce expenditures."

Mr Liu warned a "huge amount of debt" was due to be repaid this year. Debt service obligations would total Yn133.1bn, up Yn46.2bn on 1995. Foreign loans plus the budget deficit would take total obligations in 1996 to Yn195.2bn, to be financed by the issue of treasury bonds.

China's revenues for 1996 are forecast at Yn687.2bn, an increase of 11.1 per cent compared with 1995. Expenditures are expected to reach Yn748.6bn, up 9.9 per cent on the 1995 figure.

Mr Liu said China's plans to slash tariffs to an average 23 per cent from 35.9 per cent from April would "increase the difficulty of balancing the budget."

China would increase defence spending this year by 11.3 per cent to Yn70.2bn, but this represented a smaller increase than last year, when the defence budget grew by 14.5 per cent. Budgeted defence spending accounts for perhaps less than half actual spending on the military. The services generate their own revenues from commercial activities. They also receive "off-budget" funds.

ASIA-PACIFIC NEWS DIGEST

Thais struggle to slow economy

Thai economic performance in January provided mixed results for the government's plan to slow the economy and impose some discipline on the growing problem of too much short-term capital inflows. For the sixth consecutive month, the growth in private investment slowed, registering a 1.1 per cent increase year-on-year in January against 14.3 per cent in December and 14.7 per cent in November.

Import growth also slowed significantly, increasing 16.3 per cent in January against 27.9 per cent in December. Export growth remained steady at 23 per cent, leading to a trade deficit of B\$37bn (\$1.47bn), still a big contributor to the country's current account deficit.

In December, that deficit was B\$31.7bn, slightly below previous months, but analysts said a significant long-term downward trend is still not apparent. Growth in manufacturing increased for the fourth consecutive month, coming in at 9.8 per cent. But the main worry continues to be inflation, an annual 7.4 per cent in January. The central bank argued the increase was mainly due to rising food prices and therefore was cyclical. This has been the main explanation for rising inflation for the past 13 months. *Ted Baradock, Bangkok*

Election called in Victoria

Voters in the Australian state of Victoria will go back to the polls on March 30, this time for state elections. Mr Jeff Kennett, head of the Liberal-National coalition state government, yesterday called a snap poll just three days after the conservative coalition won a sweeping victory in Australia's federal election.

Mr Kennett denied he was out to capitalise on the federal win, saying if he did not call an early election, months of destructive speculation would ensue.

The Kennett government, elected in October 1992, has pursued the most aggressive privatisation programme of any of coalition-controlled states. It has taken an axe to government spending, contracting out services and cutting jobs, but has actively promoted the state, adding tourism attractions such as this week's Grand Prix and wooing foreign investors.

Saturday's result showed a swing against Labor in Victoria, less marked than in Queensland or New South Wales. It would take a contrary swing of well over 7 per cent to dislodge the Kennett government. *Nikki Tait, Sydney*

Singapore to censor Internet

Singapore's Internet access providers will have to block out sexually-oriented and politically sensitive material, the Singapore Broadcasting Authority said yesterday.

Most Internet activity would not be affected by the new rules, but the authority said it would regulate World Wide Web pages, and access to those based in foreign countries, that might undermine public morals, political stability or religious harmony. Pages run by Singapore political parties would have to be licensed by the government.

In Singapore, which has about 100,000 Internet users among its 3m population, the government has embraced the Internet, using it to issue press releases and official statistics. "But we must also try to keep in check abuses in cyberspace such as pornography, hate literature, swathing social and religious discords, and criminal activities," the authority said.

The government has already put some sites off-limits by ordering the country's three Internet access providers not to connect to news groups whose titles include "ahsex". SingNet, an access service run by Singapore Telecom, the country's phone company, said it could keep out unwanted foreign material by blocking access to sites identified by the government. *AP, Singapore*

China grows more suspicious of Lee

China suspects President Lee Teng-hui, who is of native Taiwanese extraction and is widely expected to win this month's presidential election, of shifting towards independence from China rather than eventual reunification, write Laura Tyson and Peter Montagnon.

It has subjected him to vehement public criticism since he made a private visit to the US last year. Some analysts believe the aim of the missile tests announced yesterday may be to frighten voters into according Mr Lee a victory but with less than 50 per cent of

the poll. That would reduce his mandate for promoting independence.

To a limited degree, the tactic worked in last December's general elections. These saw a surprisingly strong showing for the conservative New party which wants to foster close links with China. The ruling Kuomintang nationalist party scraped home with only just over half the seats in the Legislature Yuan.

Others argue that Mr Lee is the only Taiwanese politician with whom China could eventually clinch a deal on reunification. While it clearly wants to dis-

credit him, there is a growing view in Taipei that Beijing has also become aware of the need for quick progress on unification.

The chance of bringing Taiwan back into the fold may ebb as democracy becomes more entrenched and once Hong Kong reverts to mainland rule next year.

China has said it will not rest until it has brought about reunification, and may keep up its pressure even after the elections.

China was enraged by the US decision last year to grant Mr Lee a visa to

attend a reunion at Cornell university. Beijing recalled its ambassador from Washington, froze most official contacts and embarked on a campaign of intimidation against Taiwan.

Yesterday's announcement by Beijing has heightened unease on the island long accustomed to living under a siege mentality. There are concerns that with the tests taking place so near to its shores, there could be some sort of miscalculation. As one Taipei-based foreign investment banker joked: "I'd feel much safer if they were aiming at us instead of near us."

Mad Hatter enters Japan's loan fray

The government is becoming desperate to persuade the public, writes Gerard Baker

The final stages of the Japanese government's attempts to get its plan for a bailout of the country's housing loan companies through parliament look increasingly as though they might have come from the pages of Lewis Carroll's *Alice* books.

In chaotic scenes at the parliament building in the past two days, members of the main opposition have so far successfully blocked passage of the budget that would permit the proposed public spending.

Their tactic has been to stage a kind of Mad Hatter's tea party outside the committee chamber, assailing government ministers who attempted to persuade them to get on with the debate.

Then, in a similar spirit of surrealism, in the early hours of Tuesday morning, the increasingly desperate governing coalition parties came up with a novel plan designed to break the deadlock.

The new proposal purports to make concessions to official opposition and public hostility by increasing the costs of the bailout to the country's banks.

On closer examination, if it is to succeed, it clearly requires the Japanese public to believe, like Alice's Queen, several impossible things before

breakfast. This latest twist is an attempt to assuage the almost unprecedented popular anger at the planned use of public money in the liquidation of the housing loan companies, which are on the point of collapse under a pile of non-performing loans.

The focus of the new scheme is an apparent increase in the burdens to be borne by the main creditors of the housing lenders, the country's banks and agricultural co-operatives.

The original plan, which was drawn up three months ago, called on the banks that founded the housing loan companies, or *jusen*, to write off all their Y3,500bn (\$33bn) in loans.

Non-founder banks would write off Y1,700bn, while the agricultural co-operatives, the highest category of creditor, got off lightly with just Y300bn. The remaining Y800bn would be met by public funds.

These funds are expected to cover the first-stage Y6,400bn in known losses at the *jusen*. Further losses, expected to reach at least Y1,200bn, would then be covered over a 15-year period, split half and half between banks and public funds.

The new proposal changes none of these basic elements, despite public pressure on the government to back down.

Instead, its main component is that over a seven-year period, the banks will pay additional taxes of Y500bn. The agricultural co-operatives will pay an extra Y180bn.

The combined sum is almost precisely equivalent to the government's planned contribution to the scheme. That appears to leave the banks and the farming institutions in effect paying back the controversial Y600bn the government has agreed to pay.

But the new scheme, in fact, represents nothing of the sort. The banks, it is claimed, will pay the extra tax by means of higher profits. They have pledged to restructure their operations to improve their profitability by Y1,500bn over the next seven years. That will result in higher corporation tax payments of Y500bn into the government's coffers.

Agricultural co-ops will have to find savings of at least Y500bn to produce higher tax payments of Y180bn. In short, the money is to come from unspecified targeted savings made by financial institutions.

There are several reasons why the scheme is unlikely to pass the credibility test with voters. The banks are in process of restructuring their

operations anyway, under pressure from their own heavy burden of non-performing loans.

Any improvements would in any case have gone partly to the government in the form of higher taxes.

But more important, there is no guarantee in the proposal that banks and agricultural co-operatives will in fact achieve improvements that will produce extra revenue for the government. The outlook for Japanese banks' profits in the next few years is still bleak.

The flimsiness of the pledge was underlined yesterday by Mr Toru Hashimoto, chairman of the Federation of Bankers' Associations and president of Fuji Bank, one of the largest banks. He told a news conference that while banks were committed to trying to make savings over the next seven years, they could not possibly promise unequivocally to pay the Y500bn in higher taxes.

Opposition politicians were contemptuous of what they saw as an attempt to hoodwink the electorate into backing the scheme.

"These changes amount to nothing more than an attempt to deceive the people," Mr Takashi Yonezawa, secretary-general of the New Frontier party, the main opposition party, claimed.

Even finance ministry officials appeared nonplussed. The official view was that the ministry welcomed any moves that might improve the health of the banking system, as a benefit for the economy as a whole. But in private, ministry officials were scathing.

"The coalition parties obviously feel it is a sensible political move, but from a financial point of view it is complete nonsense," one said.

The government, in short, remains trapped between two forces. On the one hand, the public, as evidenced in opinion polls and local election results in the past few weeks, is growing ever more furious about the use of taxpayers' money to bail out what they see, at the least, as inefficient financial institutions.

But on the other, the banks that founded the *jusen* will not budge from their determination not to accept any more of the cost of liquidating them.

The government is adamant that its latest scheme marks a genuine attempt to bridge the gap. But its increasingly desperate attempts to appease the public suggest it may be following a dictum of another of Alice's friends: "When I use a word," said Humpty Dumpty, "it means just what I choose it to mean."

Patten in plea to China on HK residence rights

By John Ridding in Hong Kong

Mr Chris Patten, Governor of Hong Kong, yesterday challenged China to respond to Britain's announcement of visa-free access for Hong Kong residents by making a guarantee on the right of abode for the territory's inhabitants.

"The British government has made a sensible and helpful decision on visa-free access," said Mr Patten, referring to Monday's announcement by Mr John Major, UK prime minister, to waive visa requirements for Hong Kong residents after next year's handover to China.

"Now it is for the Chinese leaders to make as rapidly as possible an equally positive decision on the right of abode in Hong Kong after 1997."

The conditions that China attaches to the right of abode, which will also determine whether Hong Kong residents

overseas will have to re-register as residents of the territory, remains a sensitive subject ahead of the handover.

"It is a serious confidence issue," a Hong Kong government official said. "Not just for the local community but also for the overseas Chinese diaspora."

During a meeting in January with Mr Malcolm Rifkind, UK foreign secretary, Mr Xian Xichen, his Chinese counterpart, indicated Hong Kong residents would not need to re-register. The issue has become a subject of contention among Chinese officials and a final decision has yet to be taken.

China welcomed Mr Major's stance on visa-free access, regarded as necessary to support free travel and the colony's position as a trade and financial centre.

But pro-China politicians in Hong Kong and the pro-Chinese press have criticised Mr

Major's assertion Britain would mobilise the international community should Beijing breach the terms of the 1984 Sino-British Joint Declaration on Hong Kong.

"For Major to say such a thing at this time at this place is extremely unwise and could put improving Sino-British relations under a cloud," the *Ta Kung Pao* newspaper said in an editorial.

"If Britain schemes to mobilise the international community to interfere in China's affairs it will run into a stone wall." The paper often provides a platform for official Beijing views.

Mr Major's announcements, made during a visit to Hong Kong, marked an attempt to reassure the colony ahead of the handover. He warned China against dissolving the Legislative Council and against tampering with human rights legislation.



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Higher law Visitor Jaguar fit-sharing for gas ket collapses

Tougher law urged on 'corporate killing'

By Robert Rice, Legal Correspondent

Companies would face big fines for management failures which resulted in death under a change in the manslaughter laws recommended yesterday by Britain's Law Commission.

The new law would apply equally to non-UK companies operating in England and Wales and would extend to UK territorial waters, British ships and aircraft and offshore platforms.

The main reason was that under the present law, prosecutions for "corporate manslaughter" could be brought only where one person could be identified as a "controlling mind" of the company.

presented no problem in identifying a controlling mind who was responsible. The owner of an activity centre was jailed for three years but last month had his sentence reduced by a year by the Appeal Court.

according to the circumstances of the case. Mr Stephen Silber, a law commissioner, said the fines imposed by courts under existing environmental laws might provide a benchmark.

Editorial comment, Page 11

Artworks disappear in line of duty

By Antony Thornicroft in London

The Ministry of Defence has "lost" 161 of its inventory of 900 works of art. The situation has become so serious that the Government Art Collection has stopped lending works of art to the ministry.

Some pictures have gone missing because mobile military personnel tend to take their office decorations with them when they move - including paintings from the officers' mess.

There is no indication of systematic theft, according to an investigation by the National Audit Office - just "natural wastage".

The MoD is perhaps the richest and largest of all government ministries thanks to gifts from retired military figures, and commemorative works of battles and personalities commissioned for officers' messes.

Many of the works of art were lost during the upheavals that have affected the ministry in recent years. An 18th century painting, *An Officer of the 23rd Foot*, valued at £8,000, (£12,500) disappeared when the Quartermaster General's office moved from London in 1992.

Visitors wash hands of oily beaches

By Roland Adburgham in Cardiff

Since the Sea Empress tanker ran aground off St Ann's Head near Milford Haven in Wales on February 15, spilling 72,600 tonnes of cargo, the fear has been not only of the damage to wildlife but of the impact on the local economy, especially fishing and tourism.

The region is one of the UK's leading tourist destinations, with the county of Dyfed accounting for a quarter of all visitor nights in Wales.

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numbers of jobs are not great - a total of 5,000 in these two areas - that reflects the low rural population.

Mr Roger Davies, the director of West Wales Task Force, says employment in agriculture has declined, has almost disappeared in deep-sea fishing and has stagnated in tourism.

The task force is a public sector partnership set up to counter the problems caused by the rundown of the region's military bases.

While fishermen, suffering from a statutory ban on catches, can immediately prove lost income, it will take much longer for hoteliers, holiday cottage owners, caravan parks, restaurants and shops to demonstrate consequential loss.

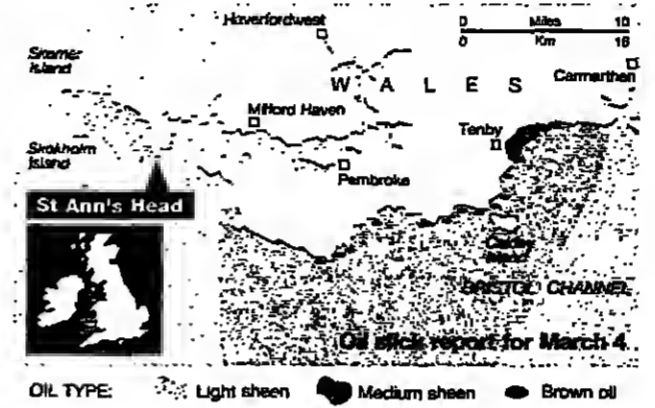
The task force claims to have helped create about 750 jobs in small and medium-size enterprises. But inward investment has been hard to achieve, although Pembrokeshire qualifies as an assisted area for government grants.

zone status for Milford Haven ended in 1994 and an application for new zones was recently rejected.

The tanker disaster, says Mr Nick Alinger, opposition Labour MP for Pembrokeshire, "couldn't have come at a worse time because this is when people are taking decisions about where to book their holidays. It will take a relatively short time to get back the natural beauty, but very difficult to get back those who book elsewhere."

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ing to reassure holidaymakers that the south Pembrokeshire beaches will be clear of oil before the summer (although there is less certainty about the quality of bathing water).

"We are greatly heartened by the clean-up," a spokesman said. "Some of the beaches were horrific a week ago, and are now 95 per cent clear."

Another consequence of the spillage is to heighten concern about National Power's plans to convert a power station at Pembrokeshire to import and burn oil.

to convert a power station at Pembrokeshire to import and burn oil.

Few argue that refining itself should cease at Milford Haven, where Texaco, Gulf and Elf directly and indirectly employ about 2,000 people.

Jaguar's new baby banks on tradition

By Haig Simonian in Geneva

Jaguar, the luxury carmaker owned by Ford, yesterday made a strong bid to be the star of this year's Geneva Motor Show with its new XK8 sports car, unveiled at the event yesterday.

"Dubbed 'the spiritual successor to the E-type' by Mr Nick Scheele, Jaguar's chairman, the XK8 is shorter but roomier than the XJS model it replaces."

Mr Scheele said the sleek new sports car, which will go on sale in October, continued a sporting tradition at Jaguar stretching back through the E-type to the legendary pre-war SS100.

"The company expects to sell about 12,000 XK8s in the first year of production. That would be more than one-fifth higher than the peak annual sales of the E-type and well ahead of the best year's sales of the 21-year-old XJS."

The XK8 should help to raise Jaguar's output to almost 43,000 cars this year from 38,000 in 1995. That would be the highest figure recorded

BA to launch internal TV service

By Michael Skapinker, Aerospace Correspondent

British Airways plans to become the first company in the world to make daily television broadcasts to its staff.

The broadcasts will include senior managers being "doorstepped" and interviews with staff involved in industrial disputes.

Mr Robert Ayling, chief executive, said yesterday that the 15-minute daily BA news broadcasts could begin in April. They will cost BA £2m (£3.1m/\$4.6m) a year, and will go to all 53,000 staff worldwide.

Mr Ayling said BA reporters would require managers to account for their decisions. "It will expose those managers who are not performing; we probably have too many managers," he said.

The broadcasts, Mr Ayling said, would give company news directly to all employees, an improvement on "the terrible rumour mill we have at the moment".

Mr Ayling, who succeeded Sir Colin Marshall as chief executive this year, dislikes systems of company communications which require each level of the corporate hierarchy to transmit information to more junior levels. "I want us

Ulster loyalists warn on violence

By James Harding and John Murray Brown

Leaders of Northern Ireland's loyalist fringe parties yesterday signalled their commitment to uphold the ceasefire until the start of all-party negotiations, but warned of "serious difficulties" in preventing a return to violence.

The leaders of the Ulster Democratic party and the Progressive Unionist party, which represent the paramilitary groups, did not rule out a return to "full-scale conflict".

However, they argued that the paramilitaries deserved credit for their "incredible restraint" in the face of the resumption of IRA terrorist violence.

The two parties also signalled a rift with the Ulster Unionists, the largest unionist party, over the format of elections in Northern Ireland.

Profit-sharing plan for gas market collapses

By Robert Corzine in London

An attempt to introduce consumer profit-sharing into the domestic gas industry has foundered, with British Gas and industry regulator Ofgas at loggerheads over how such a mechanism should work.

Possible profit-sharing arrangements have been included in discussions under way between the company and the regulator on a new price control formula for TransCo, the pipeline monopoly which accounts for the bulk of British Gas' revenues. But the two sides have adopted opposing approaches to the issue, and company executives say they are pessimistic about reaching an agreement.

British Gas is holding out for a symmetrical system under which consumers could face price cuts or rises depending on how well TransCo performs from year to year.

But Ofgas officials said they were looking at a system "in which there is only upside for the consumer". Ms Clare Spottiswoode, the director-general of Ofgas, and her staff, are concerned that 19m gas consumers, who have been promised lower gas prices as a result of the planned introduction of full competition in 1998, could see their bills rise in order to cover revenue shortfalls that TransCo might experience in a bad year.

"We recognise the problems of putting the price up to con-

Oil exploration set to rise

Assessment of investment potential

UK West of Shetland, South America, Middle East, Far East, UK North Sea, Africa, Former Soviet Union, Australia, US.

The survey, carried out by Arthur Andersen, the accountants and consultants, showed 87 per cent of respondents plan to increase exploration spending. It was less clear whether there would be a rise in North Sea development expenditure, however, with respondents divided equally between an increase and a decrease.

Respondents were particularly optimistic about prospects in the UK's newest oil province west of the Shetland Islands. The area ranked above Latin America and the Middle East in terms of its overall attractiveness for investment. Most respondents thought there was still significant oil reserves to be found in UK waters.

But a majority thought the number of jobs in the industry will continue to decline for the remainder of the decade.

A majority of respondents also thought there would be an increase in mergers and acquisitions in the UK's oil and gas sector this year. They also believe that the consolidation of the sector will accelerate in coming years.

UK NEWS DIGEST

Tourist industry hits record year

A weak pound and the Northern Ireland ceasefire helped the British tourist industry notch up a record year in 1995, with visitor spending up by about 18 per cent, figures will reveal today.

Mrs Virginia Bottomley, the heritage secretary, will hail the figures as evidence that tourism is now more important than North Sea oil and the financial services industry to the UK economy.

But many in the tourist industry remain concerned that Britain is failing to increase its market share of world tourism, and they believe more government spending on overseas promotion is vital.

Figures from the Central Statistical Office will show that visitor spending in the UK in 1995 was about £11.8bn (£18.2bn), up from £10bn in 1994.

The annual figures will also show an increase of some 12 per cent in the number of visitors to Britain - the largest jump in recent years. The total number of visitors in 1995 is expected to be about 23.5m, up from 21m.

George Parker, Westminster

Beleaguered shipyard wins order

Swan Hunter, the Tyneside shipbuilder saved in June after two years in receivership, will today announce its first substantial order, which will provide work for 1,300 people.

The company, owned by Dutch businessman Mr Jaap Kroese, has won a multi-million pound contract to convert a 330m-long, 90,000-tonne bulk carrier, *Solitaire*, into the world's biggest pipelaying vessel.

The contract, awarded by Dutch-based Allseas, is a breakthrough for Swan Hunter's new management, which bought the company's main Wallsend yard and its name for about £4m just days before an auction of its machinery would have made its demise inevitable.

Swans' confirmation of the order, signed on Friday after months of negotiation, coincided with news yesterday from VSEL, based in Barrow-in-Furness, Cumbria, that it has won its first merchant shipbuilding order for more than 20 years.

In a £14.75m deal that will save 60 jobs which were to have been shed next month, VSEL will build two tankers for shipowners James Fisher and Sons. The order was won against competition from the Far East, Turkey, the Netherlands and the US.

Weather service funding shift

Britain's Meteorological Office is to gain extra commercial freedom by moving to "trading fund" status from April 1, the government announced last night.

The effect will be to remove the Met Office further from the financial and managerial control of its parent department, the Ministry of Defence. Instead of receiving most of its funds directly from the MoD through the parliamentary vote, the Met Office will meet all running costs by selling forecasts to the MoD and other customers in the public and private sectors.

As a business it will have revenues of about £150m a year. Its asset base is just over £100m (of more than half represents the UK share of international weather satellites).

About 15 government agencies are already operating as trading funds, from the Royal Mint to the Defence Evaluation and Research Agency.

Nadir video link blocked

An attempt to allow Mr Asil Nadir, the former Polly Peck chairman, to give evidence by live video link from northern Cyprus in the Old Bailey trial of Mrs Elizabeth Forsyth, his personal assistant, was blocked yesterday by Mr Justice Tucker, the trial judge. He said the law only allowed video links to be used in cases where perjury proceedings could later be brought against witnesses if necessary. This was not possible with Mr Nadir in northern Cyprus.

Mrs Forsyth denies two charges claiming she handled £385,000 allegedly stolen from Polly Peck by Mr Nadir. Mr Nadir has remained in northern Cyprus since leaving Britain in May 1993.

Oil industry views

Assessment of investment potential

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Robert Corzine, London

NOTICE TO THE WARRANTHOLDERS OF CREDIT SAISON CO., LTD.

Warrants (the "Warrants") to subscribe for shares of common stock of CREDIT SAISON CO., LTD. issued with U.S. \$150,000,000

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Pursuant to Clause 3(xiv) of the Instrument dated 25th April, 1991 (the "Instrument") and in accordance with Conditions 7 and 11 of the Terms and Conditions of the Warrants, notice is hereby given that:

Due to issuance by CREDIT SAISON CO., LTD. (the "Company") on 29th February, 1996 of U.S. \$200,000,000 2 1/4 per cent. Bonds due 29th February, 2000 with Warrants to subscribe for shares of common stock of the Company (the "Shares"), the First Unsecured 15,000 Million Yen 1/2 per cent. Convertible Bonds due 31st March, 2003 and the Second Unsecured 15,000 Million Yen 3/5 per cent. Convertible Bonds due 31st March, 2005, respectively, at a consideration receivable by the Company of Yen 2,409 which is less than the current market price per Share (Yen 2,436.30) on the date in Japan on which the Company fixed the consideration, the Subscription Price of the Warrants in effect was adjusted, effective as of 1st March, 1996, as follows pursuant to Clause 3(vii) of the Instrument and Condition 7 of the Terms and Conditions of the Warrants:

Subscription Price before adjustment: Yen 2,212.5

Subscription Price after adjustment: Yen 2,209.0

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Dated: 6th March, 1996

BUSINESS AND THE ENVIRONMENT

Potential sources of pollution at Logan Airport in Boston, Massachusetts are easy to spot. In peak hours, the exhaust from buses and cars hangs heavily in the air. When aeroplanes take off, they leave behind a black streak, and in the distance, industrial chimneys emit grey smoke.

Yet whenever the state transportation authority, Massport, tries to discover exactly where the pollution is coming from, local businesses engage in old-fashioned finger-pointing. "Everyone blames everyone else for the problem," says Norman Faramelli, a director at Massport. "And there is no way to prove who is responsible."

A new technology developed just across the Charles River at the Massachusetts Institute of Technology (MIT), however, may soon make Faramelli's job a little easier. Three professors at the university - Adel Sarofim, William Peters and John Vander Sande - have come up with a way to trace small-particle pollution to its source.

By imaging particles with electron microscopes and conducting a complex analysis, say the professors, they can identify not only the generic origin of soot - such as car exhaust or factory pollution - but the specific source as well.

According to the MIT professors, every pollution source carries a unique "signature" - a "sootprint", as they have dubbed it.

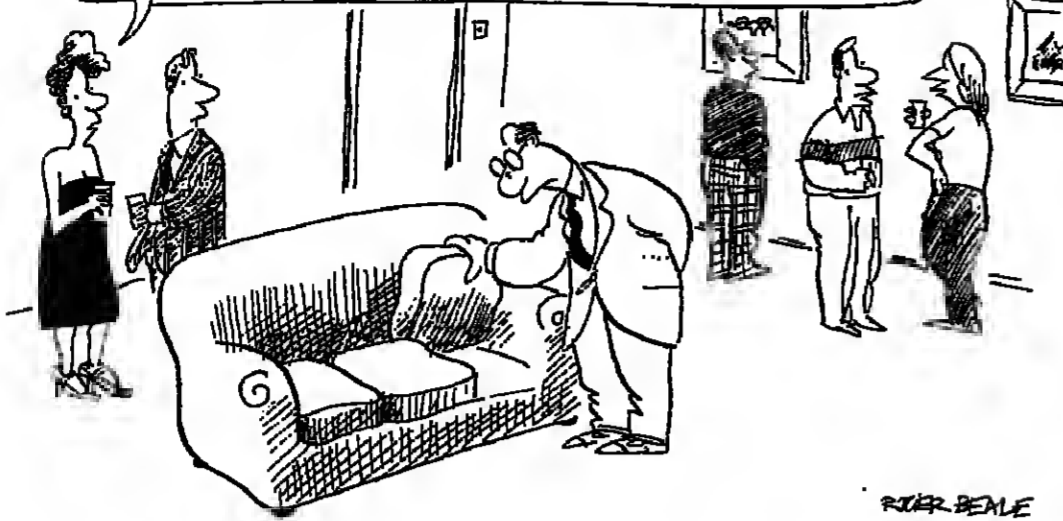
"To start with, we can say if the particle comes from a diesel engine," says Vander Sande. "Then we identify other particles like the kind of lubricating oil used, which fuel it was operated on, and so forth. With a thorough analysis, we can even identify other conditions such as the time of day it was operated or if an aeroplane was taking off or landing."

After 10 years of research, Vander Sande and his colleagues say, they will be ready to conduct some large-scale testing later this year. If everything goes according to plan, many businesses may be held fully accountable for their pollution for the first time.

One of the professors' first customers may be the government of Massachusetts. "This could be a valuable tool for us," says Sonia Hamel, director of air quality for the state. "We may request some testing in the autumn. If I were a company putting out a lot of pollution, this technology would make me nervous."

Identifying pollution sources is vital for tackling air quality problems around the world. Yet until now, it has been a very inexact science. In Mexico City, for instance, the murky haze that envelops the city has been blamed on everything from steel plants and buses to residents using gas burners at home.

THE HOUSEWORK IS NEVER FINISHED WHEN YOU'VE GOT A SMALL-PARTICLE POLLUTION EXPERT IN THE FAMILY



'Sootprint' clue to pollution

Detecting specific sources of harmful small particles may be about to get easier, writes Victoria Griffith

"In an ideal world, pollution would be controlled uniformly at the source," says Vander Sande. "But in reality, pollution is often targeted for control only once it is known to produce an undesirable effect. But if people are dying of cancer in a certain area, for instance, there has been no way to prove it is because they live down wind of a factory 15 miles away."

Mobile sources of pollution such as cars and aircraft present another challenge. Cars represent millions of tiny smokestacks; yet because they are so small and numerous, they are extremely difficult to control. The new MIT technology would help environmentalists assess the exact impact of such mobile sources.

But it will not resolve all pollution analysis questions. For one thing, it identifies only soot - technically defined as small particles. Public focus is still mainly on gas pollution - elements such as ozone and carbon monoxide.

Yet soot has been gaining attention as a particularly harmful form of pollution. A recent series of studies at Harvard University's School of Public Health, for

instance, link small-particle pollution to severe health problems and early death.

Vander Sande knows first hand the health problems soot can cause. His analysis began 10 years ago in the hills of Pennsylvania, when he was asked to study small particles

important than the number of years spent underground.

Because of health studies like that one, environmentalists are paying increasing attention to small-particle pollution. Yet even as the focus shifts to soot, it will take a long time and a lot of investment for the MIT technology to make any large impact on air quality control.

"We first need to take samples of pollution at a specific factory to be able to say that soot comes from that factory," says Vander Sande. "Without a basis for comparison, the technology would be meaningless." And Vander Sande admits his operation is still so small that just one or two large-scale studies would keep his equipment tied up for nearly a year.

Despite the problems of implementation, the MIT sootprint system is an important breakthrough for pollution control. For the first time, says Vander Sande, environmental managers could irrefutably link pollution to sources, even if they are many miles away. "Anything that helps us identify where the pollution is coming from is extremely useful," says Hamel. "This technology may help us do that."

Viewpoint • By Derek Osborn

Action plan for everyone

Brussels is preparing new proposals following a period of both progress and deterioration

The European Union is gearing up for a new round of negotiations on its environment strategy for the rest of the decade.

The European Commission recently published proposals for updating its last environment action plan, adopted in 1992, and Ritt Bjerregard, the environment commissioner, presented them to the Environment Council for a first preliminary discussion on Monday.

One of the important background documents to the revised plan is a report which the Commission asked the European Environment Agency to produce last year. The agency's job is to monitor the state of the environment throughout Europe and trends in it. Last autumn's report shows a mixed picture: good progress on some issues but deterioration on others.

Overall, we are still some way from achieving a sustainable pattern of development in Europe. The reduction and elimination of CFC (chlorofluorocarbon) production to protect the ozone layer is one of the great success stories of the environment in recent years, and shows what can be achieved by scientists, policy makers and industry working together to solve a problem.

It is encouraging to see how the environmental necessity of eliminating CFCs is becoming the mother of all kinds of new CFC-free inventions, such as the hydrocarbon refrigerators launched last month by Elstar of the UK.

But the report shows that in other areas we are not yet doing so well. Carbon emissions may possibly be stabilised by Europe as a whole by 2000 as planned. But we are clearly only at the beginning of the efforts that will be required in Europe and throughout the world to deal with the climate change problem.

The energy supply sector has done the most so far to achieve

greater carbon and energy efficiency. More will be needed in the next stage from greater efficiency in the consumption of energy, above all in the transport sector. Everyone is looking for innovation from industry here - and for new proposals from the Commission for targets and measures to promote greater carbon efficiency in vehicles.

Emissions of sulphur dioxide and the problem of acid rain have been much improved in the past few years as coal use has declined and techniques have been introduced to clean up emissions from power plants and other large combustion plants. Further progress over the next few years is clearly now in the pipeline.

The quality of air in our streets has, however, been deteriorating because of the growth of road traffic and increasing emissions of nitrogen oxides and other pollutants; and although catalytic converters will bring some reduction of emissions from new vehicles, the growth of the number of vehicles is expected to cancel out much of the benefits.

We shall need more new technology here, and another round of tightening of standards to deal with these NOx emissions and the growing concern about poor air quality and its possible health effects. Again, the Commission's next set of proposals, following lengthy co-operative studies with the oil and motor industries, are eagerly awaited.

Meanwhile, strategies are beginning to be put in place to minimise or cut the production of waste throughout Europe, to promote recycling and to improve methods of final disposal of unrecyclable waste.

There is still far too much waste being produced, and not yet enough recycling. Also, too much waste is being disposed of to unsatisfactory landfill or in old and outworn incineration plants. Major investment will be needed in waste reduction, recycling systems, recovery of energy from waste and improved landfill management over the next few years.

Water quality is gradually improving in most parts of Europe,

with the massive investment programme following through from the Urban Waste Water Directive and other European water legislation. But there is more to be done to clean up ground water and other waters affected by diffuse sources of pollution, particularly those arising from agricultural practices. Further reforms of the Common Agricultural Policy could have a major influence here in encouraging less intensive forms of agriculture with lighter use of pesticides and fertilisers. There may need to be new efforts to deal with some of the damaging effects of persistent organic compounds.

The Commission's new action plan is a bold and wide-ranging document which gives a strong lead on the way forward on all these issues.

It proposes more use of economic instruments to encourage good environmental practice; a new pattern of voluntary agreements with industries to achieve environmental improvements; further measures to promote more sustainable agriculture; and more environmentally-friendly transport; and measures to strengthen the implementation and enforcement of environmental legislation.

There is sure to be intensive debate on the plan during 1996 both in the Environment Council and in the European Parliament, before it is agreed by the new Maastricht process of co-decision.

But the significance of the debate goes way beyond the environmental professionals in Brussels and capitals. The plan and its implementation needs to involve those responsible for transport, agriculture, energy and industry policies at European and national level just as much as environment policy specialists.

It also needs to involve industry and business, local government and non-governmental organisations just as much as national governments. The environment action plan is a plan for everyone's environment - and everyone needs to be involved. The agency will provide the facts to fuel the debate.

Derek Osborn is chairman of the European Environment Agency.

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Television/Christopher Dunkley

Candid questions and comedy

There is a nice irony in *Band of Gold*, the ITV drama which has been stretched into a second series following the surprise ratings success of the first. The narrative revolves around a band of prostitutes. But thanks to the hysteria of some Britons over sex, ITV dare not actually show the women providing the common or garden services with which they earn their living, so instead we get the weird and wonderful.

Thus we see Carol putting on stockings and suspenders and strutting around while curly hair on his rubber gloves and new girl Colette engaged in conversation with Anita while casually continuing with the flagellation of a punter as he kneels in skirt and ear rings to clean out her kitchen cupboards. Heaven forbid we should get a glimpse of sexual intercourse - that might corrupt us! The first series, about a murder, was pretty bleak and gritty. Episode 1 in the new series suggested that we may be in for something more soapy and banal as the women's cleaning company takes off and the supergirls outwit the beastly men.

Under the title *The Long Johns*, Channel 4 is running 10-minute versions of the two-handers created by John Bird and John Fortune for *Rory Bremner, Who Else*. These semi-improvised confrontations between a mild mannered interviewer and some ghastly authority figure (two-faced politician, grasping head of a privatised utility, and so on) have added tremendously to the Bremner series. So unedited versions seemed a marvellous idea. But in fact they bear out the old rule that the more tightly you edit, the better comedy usually becomes. To see the under-edited versions, complete with cursing and hesitations, actually reduces the pleasure.

If there are any greybeards left in the comedy department of the British BBC, perhaps one of them could bring this rule to the attention of Dawn French and Jennifer Saunders. From their earliest work together on screen they have tended

towards the self indulgent, but there have been moments in the new series of *French and Saunders*, which finished on Thursday, that have been the worst.

It seems odd that performers of such obvious intelligence should have a blind spot when it comes to knowing when a joke has been worked to death and beyond. The worst example concerns the two provincial ladies, one of whom repeats everything the other has said, five seconds after she has said it, and while she is still talking, it was not funny the first time they did it, and to see it come up again suggests to the viewer that these performers are now beyond editorial control. Still, their *Sloanes* trying to run an art gallery and getting 12 separate sounds into every vowel are priceless. And Dawn French's lying schoolgirl - "So you went to that rave?" - "Yeah, were my Oasis tee-shirt and took E all the way through!" - "Funny I thought I saw you that evening in your

gym slip with your dad in the high street" - has me flailing for breath on the old greek sofa.

When ambulance-chasing series such as *Blues And Tunes* first appeared on UK television they were condemned here as cynical attempts to exploit misfortune for the sake of ratings: "See the old lady trapped under the lorry!" Experience has shown, however, that not every programme in this category is contemptible. BBC1's two recent *999 International Rescue* specials have been enthralling and inspiring. True, each did spring from people's misfortune, but it was their good fortune in which these programmes were interested.

First came the woman whose life was saved by an operation during a long-haul flight, carried out by a professor of surgery, a medical student, and an air stewardess, using a wire coat hanger, a pair of scissors to go through the chest wall,

for crying out loud) and brandy for sterilisation. Then, amongst other stories last week, was that of the Chinese lorry driver whose vehicle fell hundreds of feet down the side of a remote wooded valley, leaving him trapped in his cab under a tree trunk, only to be rescued by a whole team of western doctors and engineers who happened to be the next people to pass along the road and who recorded brief bits of their rescue on camcorder. It makes a change from all the hatred and death on the news.

You see few genuinely new ideas on television these days: anything claiming to be either a modification or a combination of old ideas. *The Mark Thomas Comedy Product* on Channel 4 comes as close as possible to being really new, though even this reminds you of *Candid Camera* and the Beadle dreadfulness. The difference is that Mark Thomas's stunts come with attitude. He is a funny and fast-fire stand-up comedian, but the guts of these programmes are the filmed sketches.

Two weeks ago he went in a rabbit outfit to the offices of Live TV, the Daily Mirror cable TV company where they have News Bunny, claiming to be a stand-in sent by an agency. Last week he drove a tank around London trying to get government help in exporting it to Iraq, calling on the DTI and even William Waldegrave's home.

He also interviewed a PR woman from McDonald's who explained how the hamburger experience should be fun. Then he tested to breaking point the sense of fun of those running a drive-in McDonald's, ordering 50 burgers which he promptly tried to re-sell at cut price outside their front door, taking cows through the drive-in, and arriving with a jazz band on a low-loader. The trouble is that even if you begin by feeling he

has chosen legitimate targets, you usually end up sympathising with the small fry who invariably have to deal with him.

You could argue that Ruby Wax was using the technique before Thomas, but her targets are usually individuals rather than companies, government bodies, or ideas. The similarity lies in the way that Wax likes to form a conspiracy with the viewers against the target, whether it is Imelda Marcos or Pamela Anderson. The trouble is that, as with Thomas, the goading and sly asides to camera can eventually set you against the interviewer and drive you into a sort of sympathy, however unwilling, with the victim. But in the last episode of *Ruby Wax Meets*... the subject was Burt Reynolds who gave as good as he got, waiting till Ruby was preoccupied and then leaning into camera to comment in a stage whisper on this pushy broad, and making sure, when she dived behind him to put on a Burt Reynolds tee-shirt, that we all got a good look at the hefty Wax frame. No doubt our heroine was in on all of this, but the sense of equals fencing was more enjoyable than that of a clever-clogs scoring points off a dimwit.

Concert Vienna Concentus Musicus

A visit to London by the Vienna Concentus Musicus is always an event to look forward to, especially given that its guiding force, Nikolaus Harnoncourt, is more likely to be found conducting international symphony orchestras such as the Concertgebouw and the Chamber Orchestra of Europe these days and picking up numerous recording awards. So its visit to the Barbican Hall on Monday to kick off its International Chamber Orchestras series (which over the next three months promises concerts from the English Chamber Orchestra and the Czech Chamber Orchestra and the Moscow Soloists and Yuri Bashmet, and Stockholm Chamber Orchestra and Esa-Pekka Salonen) was especially welcome, not least because it offered that increasingly rare, an all-Haydn programme.

The Concentus Musicus is the oldest of the big-name period-instrument bands, founded over 40 years ago. Alike Harnoncourt continues to grace the front desk of the first violins and there is still something earnest and preying about its playing. Current fashions among period performance specialists may permit a degree of tonal flexibility and warmth, tainted perhaps by later 18th-century habits, but for all its efforts to keep up to date, ghostly flickers of the hair-shirted austerity and maddening mannerisms found in the Concentus Musicus's early Bach cantata recordings, for instance, still remain.

Its account of Haydn's Symphony No. 52 in C minor, the quintessential *Sturm und Drang* work, was superficially impressive and often thrilling: bows bit into strings, rhythms were spat out, and valveless horns whooped with irrefragable but bloodless, relying on broad effects of contrast to make his points, pompos rather than purposeful. Much detail was lost in a congested mass of sound which the dutiful application of all of Haydn's repeats did little to clarify. The arrival of Barbara Bonney to sing two Haydn opera arias from *Il mondo della luna* and *L'infedeltà delusa* promised to shed a welcome beam of sunlight, but even she seemed disorientated at first, as po-faced in manner as the players.

It was not until the second half of the concert that matters took an upward turn. During the *Scena di Berenice* a genuine sense of dialogue ensued, and Bonney and the orchestra often produced music making of a quite special and melting beauty. After this, a rumbustious account of the Symphony No. 31 in D did much to save the day, with appropriately rustic playing from the four horns in the first movement, some eloquent solos from leader and principal cellist in the second, a well-pointed minnet and a nicely delineated variation finale. Not the most searching or joyous Haydn performance by any means (who, after all, can compare with Beecham?), but a distinct improvement.

Antony Byrne

Theatre/Sarah Hemming

Contraband in Cornwall

Let's get a few things straight first. There is no monarch in Nick Darke's new play *The King of Prussia*, neither does it venture anywhere near Germanic territory. The Prussia of the title is Prussia Cove in Cornwall and the self-styled "king" of it is John Carter, the charismatic leader of an 18th-century smuggling ring.

Darke's play, which is brought to the Donmar Warehouse's "Four Corners" season by Cornwall's Kneehigh Theatre, follows the exploits of Carter and his fellow "free traders" but is far from being just a hearty romp, a romantic nostalgia trip or a dry history play. Rather it seethes with life, wit and ideas.

The Carters are running a successful enterprise. George III is on the throne, revolutions are in the air and nervousness makes duties heavy. So free trade is brisk and Carter and his brothers provide a vital service with their contraband gin and brandy.

But while Carter may break the law of the land, he prides himself on never breaking the laws of nature. "I am an honest man," he protests, constantly, and his code is strict and rigorous: he never marks his goods up more than his customers can afford.

It is only when a wealthy couple from Bath, the Stackhouses, move into the area and the hored Mrs Stackhouse, ignored by her botanist husband, starts playing the smuggling game to her own rules, that things turn sour.

This is a meaty play, with some wonderful running gags and tricks of staging. But like Cornwall's coves, it has many unexpected depths. The piece acts as a critique of capitalism, it also raises questions about the points where justice, conscience and the law part company.

These themes are woven into an enjoyable script that throbs with a sense of place. You feel the presence of the sea constantly. You also feel that these are people living on the edge, in every sense. They are closer to the continent than to the rest of England - they all know where Brest is, but they have never heard of Bath. And the idea that life depends on wit and energy is reflected in the staging: in Mike Shepherd's playful, vigorous production, the versatile cast leap from scene to scene, turning a simple wooden gantry into a cliff-top, a ship, a drawing room, a guillotine.

Darke gives shape to a Cornish identity that feels vital and real and has nothing to do with clay pipes and clotted cream. He has an evident love for his native dialect and writes rich, earthy dialogue with which the fine cast are totally at home. Carl Grose and Bec Applebee as Eddie Carter and Bessie the landlady give riveting, utterly convincing performances, while Tristan Sturrock as John Carter is splendid: impetuous, wily, proud.

The play's weak spot lies in the characterisation of the Stackhouses, which is fairly flimsy and monotone. But this is a rich and good-humoured work that embarks on its task of navigating Cornish identity with admirable stealth and is full of wicked contemporary barbs. There is no mistaking the irony when, at the end, Eddie Carter gives up smuggling to take up fishing.

The King of Prussia runs to Saturday at the Donmar Warehouse, then tours; the "Four Corners" season continues with plays from Wales, Ireland and Scotland (0171-969 1732).



Charlie Barnecutt and Tristan Sturrock in 'The King of Prussia' by Nick Darke

Opera in Stockholm/Martin Hoyle

Don Giovanni

Don Giovanni for the age of Aids? A *Don Giovanni* with a specifically Christian bent? Both courses bristle with dangers, from sentimentality to kitsch. Stockholm's Folkoperan (People's Opera) triumphantly avoids all the traps in the most theatrically riveting production of Mozart's *dramma giocoso* I have ever seen. Directed by Peter Stormare, with sets by John Conklin, it was premiered by Glimmerglass Opera, New York, last July.

A child in a nightgown wanders on during the overture; through the gauze we see the characters of the drama slumped, seated, sprawled. The child touches them into life; she puts on the cliché Mozart powdered wig and frock coat, and prowls watchfully through the action.

What might have been merely sentimental has a wonderfully practical side - in the Act 1 finale, for example, where the Don, surrounded by armed enemies, is usually miraculously free with one bound. Here Don Ottavio places a pistol at the seducer's head. The music ends to a black-out; a shot rings out; but the lights come back and Giovanni is missing to everyone's bewilderment. The wise child Mozart comes forward drawing the magician's shutter-gesture across her face to reassure us the Don will be back after the interval. When Ottavio draws the noose tight round Leporello's neck, the child snaps its fingers and time stands still as the characters freeze - except for the servant who thankfully makes his escape.

Most controversial of all is Giovanni himself. This Don is half in love with easeful death from his first appearance lolling in post-coital exhaustion with a plainly possessive Donna Anna. He languidly kills the Commendatore with little effort: the old man drops his sword, agast at something in Giovanni's face: his own and others' deaths perhaps. This Don Juan can hardly walk: Leporello pushes him around the stage in a wheeled chair.

Yet he remains the compulsive philanderer throughout, his ebbing life concentrated on the only thing he can do. This is brought out in the unbearably poignant staging of the serenade. His head thrown back, sprawled in his invalid chair, Olle Persson sings in an exquisite mezza voce to the unseen maid, a coquet, peasant girl who strips and washes, exuding health and youth from every pore.

Giovanni's end is marked by writhing agony at the invisible Commendatore's amplified voice (Olle Sköld, sounding like Fañer). The child-guardian darts forward to cradle his head as he falls, and then gently raises him, a young, handsome man again. Giovanni looks wonderingly at the others, touches his victims (Elvira, Leporello) who absently brush away this half-felt presence, and wanders into immortality. Despite the hell to which he is consigned by his armed enemies, in usually miraculously free with one bound. Here Don Ottavio places a pistol at the seducer's head. The music ends to a black-out; a shot rings out; but the lights come back and Giovanni is missing to everyone's bewilderment. The wise child Mozart comes forward drawing the magician's shutter-gesture across her face to reassure us the Don will be back after the interval. When Ottavio draws the noose tight round Leporello's neck, the child snaps its fingers and time stands still as the characters freeze - except for the servant who thankfully makes his escape.

None of this would work without both acting and singing of superb ensemble quality. Persson is a young baritone who will surely be heard abroad. Fredrik Zetterström's bright-voiced young Leporello, is a good sort driven to exasperation by his demanding master, Anna (Clara Byström) benefits from the production's intimate approach, not hurling out "Or sai chi l'onore" but treating it as an emotional journal; Elvira (Christina Höglman) similarly dramatises "Mi tradi", a half-smiling, half-weeping comparison of past happiness with present pain. Klas Hedlund is a superb vocal stylist in both Ottavio's arias.

The extremely fine orchestra is conducted by Michael Bartsch. This wonderful production where not a note or a word is taken for granted, is double-cast and runs until May.

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Kammerspiele Oper Tel: 49-30-202600
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Deutsche Oper Berlin
Tel: 49-30-3438401
● Die Zauberflöte: by Mozart. Conducted by Stefan Soltesz and performed by the Deutsche Oper Berlin. Soloists include Peter Seiffert, Kirsten Blank, Marcia

Bellamy and Clemens Bleber; 7pm; Mar 11

BONN
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Oper der Stadt Bonn
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THEATRE
The Goodman Theatre
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● Arcadia: by Tom Stoppard. Directed by Michael Maggio, starring Kristina Thatcher, Patrick Clear, Fleur Phillips and Steve Celli; Mon Mar 11; 7pm, Tue - Thur, Sun 7.30pm, Fri, Sat 8pm, Thur, Sat, Sun also 2pm; from Mar 11 to Apr 14

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● Il Trovatore by Verdi. Conducted by Neuhoff and performed by the Oper Leipzig and the Gewandhausorchester. Soloists include Scharikowskaya, Hoffstedt, Griesales, Tsumaya, Noack and Gaviolo; 7pm; Mar 9

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● Toronto Symphony Orchestra: with conductor Jukka-Pekka Saraste and violinist Frank Peter Zimmermann perform Beethoven's Violin Concerto in D major, Op. 61, and Sibelius's Symphony No. 6 and Symphony No. 7; 8pm; Mar 9

PARIS
CONCERT
Théâtre des Champs-Élysées
Tel: 33-1-49 52 50 50
● Kyung-Wha Chung and Peter Frank: the violinist and pianist perform sonatas by Schubert and R. Schumann; 11am; Mar 10

THEATRE
Comédie Française, salle Richelieu Tel: 33-1 40 15 00 15
● Dom Juan: by Molière. Directed

by Simon Eira. The cast includes Allan Pralon, François Beaulieu, Dominique Constanza, Yves Gasc, Martine Chevallier and Catherine Sauval; 8.30pm; Mar 7, 10, 11

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● Hesperion XX: with conductor Jordi Savall and soprano Montserrat Figueras perform works by Guerrero, Correa, Monteverdi, Scheldt, Cabezon and others; 8.15pm; Mar 7

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Drama Theatre, Opera Theatre, Playhouse Tel: 61-2-250-7127
● A Midsummer Night's Dream: by

Benjamin Britten. Conducted by Tom Woods and performed by The Australian Opera. Soloists include Gillian Sullivan, Elisa Wilson, Kirsti Harms, Christopher Josey, Davis Collins-White and Michael Raymond Martin. Part of the Sydney Festival '96; 7.30pm; Mar 8

THE HAGUE
CONCERT
AT&T Danstheater
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● The Gambler: by Prokofiev. Conducted by Valery Gergiev and performed by the Kirov Opera; 8pm; Mar 11, 12, 13

VALENCIA
CONCERT
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Wiener Staatsoper Tel: 43-1-514442960
● Maria Stuarda: by Donizetti. Conducted by Jan Latham-Köing and performed by the Wiener Staatsoper. Soloists include Agnes Baltsa, Mara Zampieri, David Kuebler and Kurt Rydl; 7.30pm; Mar 7, 10 (7pm)

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COMMENT & ANALYSIS



Ian Davidson

Orthodox doctrine reversed

The big idea at the European Union's inter-governmental conference will be a proposal to move towards faster integration for an inner core of member states

It is now clear that Mr John Major will be offered a large backhand victory in the inter-governmental conference on the future of the European Union which begins in Turin at the end of the month. He may not like the victory when it comes, but that is politics: there is no gratitude.

Mr Major set out his vision of the European Union in a speech at the University of Leiden 18 months ago. He said he wanted to see a more flexible Union, in which some member states would move ahead of the rest, to integrate more closely in certain areas.

The traditional idea of a unitary community was, he believed, out of date. A flexible, multi-track Europe would be essential if the Union was to be enlarged to the east, and if it was to contain the diversity of its many members.

These propositions were denounced as a foul attack on the orthodox doctrine of European integration - that all EU member states must participate equally in all policies and in all institutions.

They might approach a common destination at different speeds: the programme for economic and monetary union allows for some member states to meet the economic conditions for joining the single currency before others. But it was heresy to advocate an *à la carte* - or pick-and-choose - approach to integration.

Most member states, led by Germany, want far-reaching reforms, to be agreed at the inter-governmental conference - including a wholesale increase in the number of decisions subject to majority voting. But since the UK government has already made clear that it will reject any reform of such significance, there is a danger the conference will end in impasse.

As a result, there is now the prospect of an extraordinary reversal in EU orthodoxy. For it is almost certain that the big idea in the coming conference will be "flexibility", or multi-track integration.

It will be pressed, not by the British, but by a powerful coalition led by France and Germany. And it will not be intended to promote some kind of loosening of the Union; on the contrary, it will open the door to the formation of an inner core of member states willing to move towards greater integration to circumvent British obstructiveness.

In other words, what will be proposed is not just the wholesale reduction, or even elimination, of national vetoes on detailed policies in the Union. It will be the virtual removal of national vetoes on the future general direction of European integration.

Advance indications of a push for a radical new kind of flexibility in the European Union have been building ever since France and Germany included the idea in a joint paper published last December. This said: "The temporary difficulties of one of our partners to keep up with the European integration, so if the Commission endorses a radical departure from the dogma of a unitary commu-

nity, we can be fairly sure that the idea must have widespread support among member states; which means it really may be on the cards. Last week France and Germany took this principle of flexibility a step further, with a joint proposal to introduce a system of "constructive abstention" into the development of a common foreign and security policy. Under this, no member state would be obliged to take part in a joint action against its will, but it could not prevent others from going ahead together.

The question is: why now? It is easy to see that there could be total deadlock over the future development of the Union between the UK and its partners at the inter-governmental conference. If that happens, it is also easy to imagine that the others would look for ways to side-step the British obstacle. But why are France and Germany setting up this radical - some would say divisive - attack on the ideal of a unitary community, even before the conference?

There are, I think, two reasons, one long-term, the other short-term. The long-term reason is that Mr Major is right in a much enlarged Union, multi-track integration will be unavoidable.

The Commission is already arguing that the Common Agricultural Policy cannot simply be extended to eastern Europe, because it would inflict damaging inflation on those countries by forcing up food prices. If countries in eastern Europe are to join the Union, they will not be in a position to take part in all policies immediately.

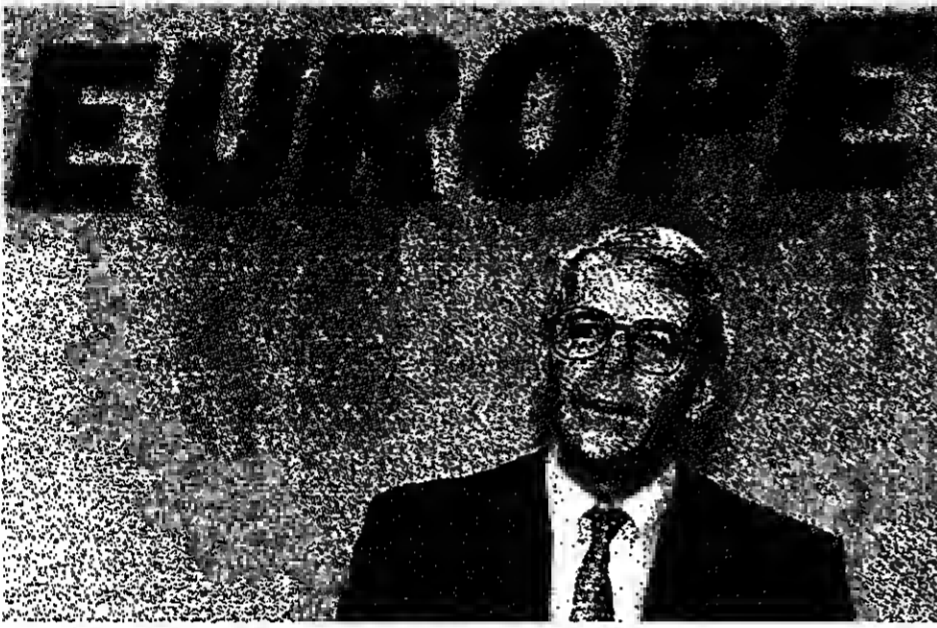
The short-term reason is Mr Tony Blair, the leader of the UK Labour party. There was a time, not so long ago, when Germans and others were openly arguing that the inter-governmental conference should be deliberately extended beyond the next British general election, in the expectation that a Labour victory would bring a UK government more accommodating in Europe.

That expectation is now, I believe, widely discounted in other capitals. Mr Blair may or may not be more pro-European by instinct. But nothing he has said indicates he is prepared to endorse anything like the German agenda for a radical reform of the European Union in a more federalist direction.

If so, the main reason of dragging the conference out beyond the British election would be to relieve John Major of any incentive to negotiate. It would thus intensify the conflict between the UK and the rest; but without any sufficient prospect of a better deal later.

In which case, it makes sense to reverse the order of events, and start by offering the British what they most appear to want: the right not to take part. "There are two tragedies in life," said George Bernard Shaw. "One is not to get your heart's desire. The other is to get it."

European viewpoint: John Major set out his vision 18 months ago



The Growing Business - Richard Gourlay

Europe left standing on the starting blocks

American venture capitalists are quicker to invest in technology-based newcomers

The average electronics and computer company was losing \$700,000, had sales of \$35m, had raised \$14m and had 146 employees. It had enjoyed venture capital backing for about five years.

The Ventureone report also looks at the number of venture-backed businesses that made their founders wealthy. Fourteen entrepreneurs held a personal stake at the time of flotation of \$50m, compared with eight the previous year.

Most of these fortunes were made in technology stocks. But whereas communications and computer networking companies formed the largest segment of the initial public offering class in previous years, software companies dominated in 1995 and not just because of the Netscape flotation. The hottest area was client-server architecture, the networks that link PCs to a larger central computer.

To underscore the scale of venture-backed success in 1995, the companies continued to climb after their first trading day. On average, shares of the 300 venture-backed companies that floated in 1995 rose by 53 per cent, compared with 30 per cent for the companies floating in the previous year.

Venture capitalists in Europe will view these figures with considerable envy. They say they would back more young technology-based businesses if they could float the companies they backed earlier. But it can

be much harder to launch new companies on European markets. In the UK, for example, relatively few start-up companies have floated in the past five years. Most of those that have floated were biotechnology companies such as British Biotech and Celltech, allowed to the main market under a modification to the rules requiring a three-year trading record. More recently London's Alternative Investment Market has shown some signs of being a market for young companies but has still to prove it can raise large amounts of capital.

Mr Rolf Selvig, marketing director of Ventureone, says the lack of public markets for young high-tech companies is Europe's Achilles' heel as regards the continent's ability to create wealth.

"In the UK there is no exit for investors in the venture capital-backed companies so the motivation to make investments is being removed right up front because the investors can't get back out," says Mr Selvig.

Like other US observers of European stock markets, he says exchange officials are too focused on protecting investors against business risk. They should instead focus on ensuring companies come to the market with accurate listing particulars and leave investors to make their own decisions about business risk.

The shape of US companies when they came to market in 1995

	Communications/ networking	Electronics/ computers	Healthcare/ services	Medical compounds	Retailing/ consumer	Software/ information services
Average attributes (\$m)						
Employees	12.1	14.6	9.1	7.4	5.9	12.4
Amount raised in private equity	19.0	14.2	25.0	22.2	10.8	12.4
Revenue	13.4	25.1	6.1	2.8	32.9	27.5
Net income	3.0	0.7	4.7	5.4	3.2	0.4
Company age (in years)	3.7	3.7	12.9	10.0	11.6	10.0
Time from funding to flotation	4.4	5.9	6.4	5.9	5.7	4.0
Total founders	29	19	17	17	19	23

Based on 103 venture-backed startup companies which completed flotations in 1995. Not full fiscal year. Source: Ventureone.

LETTERS TO THE EDITOR

Number One Southwark Bridge, London SE1 9HL

We are keen to encourage letters from readers around the world. Letters may be faxed to +44 171-873-5338 (please set fax to 'fine'), e-mail: letters.editor@ft.com. Translation may be available for letters written in the main international languages.

A choice that would destroy individual liberty

From Mr Stephane Aderca.

Sir, Edward Mortimer bemoans the loss of collective choice in favour of individual choice ("Surfeit of good things", February 28). But the collective "choice" he advocates is nothing more than the destruction of individual liberty. Could anyone claim that freedom of religion still existed if it were decided that a vote were to be taken as to which religion "we" shall adopt, and the result is binding on all? Of course not. Having one vote in millions as to which religion to

adopt is not the same thing as to be able to choose one's religion. Democracy and liberty are not equivalent. Democracy is about the source of government power, liberty about its extent. If a democratic government uses coercion without restraint, citizens are no more free than under a dictatorship.

Mr Mortimer is correct in his assertion that "if every choice is left to the market, the right to vote becomes meaningless, because the people you elect have no power to change anything". But this is the way

things should be in a free society. Liberty means that coercion should be used only to prevent coercion and dishonesty. The power of politicians to change things is based on the power to coerce. In a liberal democracy, this coercion should not exist.

There is no liberty in a democracy when every citizen knows that the result of the next election could mean coercion imposed by fellow citizens. In fact, one could say that the hallmark of a liberal, versus a totalitarian, democracy is that the result of

elections don't matter. This is the best guarantee that freedom can never be threatened by any election.

The loss of collective "choice" or "freedom" is not a great loss. There is no such thing as group "liberty", which is nothing but the freedom of the group to oppress individuals. Only individual liberty is meaningful.

Stephane Aderca, 4a Norwood Villas, Waterworks Road, Edgbaston, Birmingham B16 9DE, UK

Downside of utility mergers

From Mr Christopher J. Clarke.

Sir, David Lascelles' article "Power groups in overseas charge" (March 5) highlights why utilities are active in overseas mergers and acquisitions as growth dries up in the developed world and the industry restructures on global lines. It might be worth dwelling on the dangers by way of balance.

Academic research shows very small or negative returns to acquirers' shareholders against 25 per cent to 30 per cent returns to vendors' shareholders. Is there a compelling reason why newly liberated and fledgling utility managements should beat the experts on these averages?

Deploying core competencies across geographic or cultural boundaries is notoriously difficult. Cross-border M&A

is, therefore, even more hazardous. Arguably, investors can invest in growth utilities overseas directly. Why should they pay novice diversifiers to do so for them? Many leading investment institutions we have spoken to are rather keen that utilities remain low-risk, steady return investments in their home markets.

We are not arguing against M&A in the power industry. It has an important role to play in global restructuring. We are arguing for great caution and careful analysis and planning!

Christopher J. Clarke, vice-president - utilities, A.T. Kearney, visiting professor, Henley Management College, Lansdowne House, Berkeley Square, London W1X 8DH, UK

Best for London Stock Exchange

From Mr Steve Hull.

Sir, I would like to set the record straight on a number of comments concerning the London Stock Exchange in George Graham's feature "Blood on the road to the promised land" (March 5).

The first is that the Stock Exchange Tower, which is the main freehold asset of the exchange, is not half empty, as suggested. It has three substantial tenants, and in December 1995 heads of agreement were reached with the London International Financial Futures and Options Exchange, which means that when it begins occupying more than 75,000 sq ft of space in the middle of this year, there will be no vacant space.

In line with our business plan, and against a projection of future space management

needs, I have been managing an aggressive policy which will ensure that we generate income from any exchange property likely to become surplus to our needs.

Wherever possible, leases have been surrendered or disposed of on sound terms. Where this has not been possible, we have successfully sublet all of our surplus property. In planning for the exchange's future, we have considered all options available to us and, given that we own the tower, together with the cost of moving, I believe our strategy is both the cheapest and the best.

Steve Hull, head of personnel & property, London Stock Exchange, London EC2N 1HP, UK

Schemes for reducing unemployment not comparable

From Mr Gerald Holtham.

Sir, The cost of job creation is relatively modest, as Mr John Edmonds said (Letters, February 29), because the cost of keeping people on the dole in the UK is so high. Moreover, it is possible to devise schemes which reduce the NAIRU (the rate of unemployment at which inflation accelerates) and are therefore not inflationary.

Mr Edmonds mentioned an Institute of Public Policy Research scheme to create half a million jobs for less than £2bn a year. Your readers may have the impression that it is a

modest version of another plan, by the IPPR Employment Forum, also mentioned by Mr Edmonds, which sought to create a million full-time jobs at a cost of 1.5 per cent of gross domestic product. However, the schemes are not comparable since the Full Employment Forum plan entails expansion of aggregate demand and depends on the economy being able to sustain such an expansion without inflation going out of control. Depending on where the economy is in the economic cycle, it may sometimes be

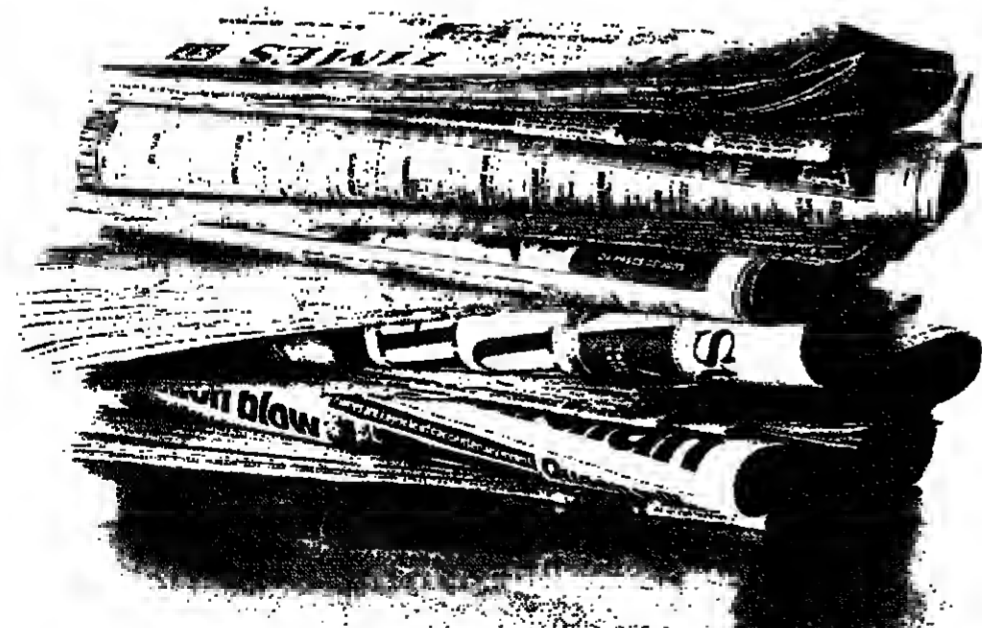
appropriate and sometimes not.

The IPPR scheme is explicitly presented as additional to anything that can be achieved for unemployment by the appropriate setting of demand side (fiscal and monetary) policies. It is aimed at the long-term unemployed, people who would mainly not benefit from a general boost to demand before it triggered rising inflation.

For what it is worth, I would guess that demand policies could reduce unemployment by some half-million. The IPPR

scheme on top could give a total reduction of about 1m. A further reduction would require radical changes to the tax and benefit systems and perhaps to the wage system. I fear that an attempt to reduce unemployment durably by 1m or more purely through demand reduction would be inflationary.

Gerald Holtham, director, Institute for Public Policy Research, 30-32 Southampton Street, London WC2E 7RA, UK



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FINANCIAL TIMES

March 6 1996

Turmoil over Tokyo rescue

Cautious step

Company death

COMMENT & ANALYSIS

The private sector must take a greater role in helping Americans to move from the old economy to the new, says Robert Reich

FINANCIAL TIMES

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Wednesday March 6 1996

Turmoil over Tokyo rescue

The long-suffering Japanese public is making its voice heard in the row over plans to bail out financial institutions with ¥65bn (\$6.5bn) of taxpayers' money. Popular anger at the scheme to rescue companies that over-extended themselves in property is so great that the government may find it impossible to push the proposals through parliament. That need be no disaster. On the contrary, political leaders should regard the impasse as an opportunity to push through radical reforms.

Cautious steps

The suggestions for upgrading the European Union's external policy that were laid out in Paris yesterday by Mr. Malcolm Rifkind are very British limited, practical and intended as a "constructive" alternative to more ambitious ideas. They are welcome as far as they go.

Company deaths

If someone dies and a company is to blame, there is probably little that relatives or friends can do about it. Almost all attempts to hold companies responsible under present law fail. According to a sensible set of proposals from the Law Commission, published yesterday, that could change.

at Buchanan may fade from the political scene in the run-up to November's presidential election. But his campaign is fuelled by anger over the falling living standards of many Americans which is unlikely to subside.

Wage disparities have been widening and real wages sliding since the late 1970s. Although the Clinton administration has restored job growth and shrunk the deficit, and median wages have stopped falling behind, the long-term challenge of restoring wage growth remains.

But while Mr. Buchanan has identified the right issue, his solutions are irresponsible and dangerous. The fault does not lie with immigrants, the World Trade Organisation, the North American Free Trade Agreement, welfare mothers, affirmative action, vena corporations or rapacious chief executives. It lies in two huge changes in the way the economy is organised.

The first is the enormous pressure the old mass-production system that used to provide good middle-class jobs has come under from new information technologies and global trade and investment. This has caused the economic earth to crack open, leaving tens of millions of Americans trapped on the wrong side of a great divide.

Contrary to the views of some neo-Luddites, the result is not fewer jobs. There are many new ones, but the good ones lie on the other side of the divide. They require technical or problem-solving skills and the capacity to acquire new skills continuously. Machines are being supplanted by operators of computer-controlled machine tools; garage mechanics, by automotive technicians who can diagnose and repair the electronic gadgets which control today's cars; clerks by office technicians skilled in using computers for storing and updating data.

In every advanced economy, demand is rapidly shifting in favour of people with such skills and against people without them. The earnings of the former are rising; the earnings of the latter are dropping (or, as in much of western Europe, they are unemployed). Those who remain trapped in the old economy either do not know what skills are needed, or cannot afford the costs of getting them, or feel too old to learn, or cannot easily uproot and move to where good new jobs can be found. As a result, most Americans who lose their jobs and find new ones never return to previous levels of earnings.

The second big change is the implicit social compact which used to bind corporations with their workers has come undone. Thirty years ago, a company that earned healthy profits could offer its employees secure jobs with rising wages and benefits - and their communities could count on a steady tax base.



A hand across the great divide

financial markets to mind the bottom line. Information technology has shrunk transaction times between suppliers and customers. Easy access to capital markets has allowed small companies to grab market share from big ones.

Add the convenience with which vast amounts of capital can now be moved at the push of a key on a personal computer and the result is "electronic capitalism" - a worldwide system for immediately redeploying financial assets where they can earn their highest return.

One forever is the gentlemanly investment system that once allowed chief executives to balance the interests of shareholders against those of employees and communities. Now, chief executives who don't abandon their employees and communities when the bottom line requires it risk trouble - while those who do are able to pocket multi-million dollar bonuses and stock options. Even the term "lay-off" no longer means what it used to. Most lay-offs are now permanent. A new word is needed to describe this phenomenon - perhaps "cast-offs", rather than lay-offs. This change in the implicit social contract makes it harder to deal with the more competitive business environment. The modern corporation's sole focus on maximising shareholder returns makes it less able to ease the workforce's transition to the new economy.

Nations as a whole are better off when employers teach their workers basic or industry-wide skills beyond what is required to function effectively in their current job. National economies as a whole are more flexible and productive when employers ensure workers who are no longer needed get trained for and placed in new jobs. Yet, because shareholders don't reap the full benefits of such investments, even the most enlightened chief executive is loathe to make them to the extent that society needs.

What may be rational for each individual corporation is irrational for society. Almost three-quarters of national output comes from people; only a quarter from machinery. The quality of a nation's labour force is the engine of economic growth; physical capital is the caboose.

If a significant portion of the workforce lacks the skills to succeed in the new economy, everyone's standard of living is imperilled. Widening inequalities and insecurities also contribute to crime, delinquency and threats to public health.

Can government fill the breach? Only partly. While government can help people get job skills and offer support when unemployed, massive accumulations of public debt over the last 15 years require austerity. As President Clinton noted in his State of the Union address, "the era of big government is over."

To be sure, government can make more effective uses of its resources. For example, the administration has taken steps to change the unemployment insurance system - designed to provide income support during temporary lay-offs - into a re-employment system designed to move people rapidly into new jobs. The President wants to consolidate

international banking issues at the Senate banking committee for Republican Jake Garn. He takes control at a delicate time: The Group is working on ways of handling international bankruptcies, such as last year's Barings collapse.

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federal job-training programmes into vouchers which unemployed or low-wage workers can use at community colleges or technical schools to obtain skills. He has also proposed significant tax deductions to offset family expenses for university education or job training.

But the public sector cannot possibly do the job alone. The private sector must take more responsibility for helping Americans across the great divide from the old economy to the new. Business will need incentives to do things which do not necessarily improve shareholder returns but benefit society as a whole.

One possibility (this is far from a formal legislative proposal) would be to reduce or eliminate corporate income taxes for companies that achieve certain minimum requirements - for example upgrading the general skills of employees, sharing more of the profits with them and, when laying them off, retraining and placing them in new jobs.

This is a modest measure. Charitable enterprises are already spared paying income taxes; partnerships and proprietorships also receive favourable tax treatment. These differences reflect judgments about the social benefits and responsibilities stemming from these different forms of organisation.

But the same logic can be applied to business: there are social advantages in improving the quality and flexibility of the workforce, and societal costs in failing to do so. Certain enterprises may be well-positioned to maximise these advantages and minimise these costs - better positioned than others, and surely better positioned than government. Society should encourage them to do so, and reward them accordingly.

Those who worship at the altar of the free market need not fear blasphemy. Corporations would not be required to keep on workers who do not contribute to the bottom line, nor to remain in communities if there are more efficient places to produce. It would be a simple *quid pro quo*: lower - or no - corporate income tax for accepting more responsibility for the social costs and benefits of economic change.

Where to make up the lost revenues? One possible source would be ending the myriad special subsidies and tax breaks targeted to particular companies, which provide no appreciable public benefits. Such corporate welfare totals over \$100bn a year in the US, according to the estimates of think-tanks across the political spectrum.

Others will have different ideas for how corporations can best respond to the growing inequalities and insecurities experienced by working people trapped in the old economy. But discussion about the proper role of the corporation at this unique moment in history is no less important than the current discussion on the role of government.

When so many are floundering in the face of record profits and a soaring stock market, the failure of the private sector to respond imperils continued prosperity and stability. If too many people feel excluded from the gains of a growing economy and disproportionately burdened by its risks and costs, they will eventually support policies that sacrifice growth in favour of economic security - such as trade protection, capital controls and inflexible employment rules.

OBSERVER

David takes on Goliath

An unseemly spat has broken out between Morgan Stanley, the blue-chip US investment bank, and David Roche, who used to be its hottest European research chief. Roche, who now runs his own research outfit, Independent Strategy, is upset because his old employer has had the temerity to question his views on China's future.

The dispute has its roots in an article Roche wrote for the Wall Street Journal early last month. Roche takes a more bearish view of China's long-term prospects than Morgan Stanley. Nothing too astonishing in that, as his old employer has high hopes for China. It helped set up China's first international investment bank and he keen to win lots of business.

His master's voice

Open him up, and the UK prime minister John Major will probably have Seoul engraved upon his heart. In Seoul on the last day of his Far East tour, Major's entourage was heartened to read an editorial in one of the local English-language dailies, the Korea Herald.

The Korean scribe began caustically enough, describing Major's jaunt as a "fitting and propitious occasion to further the cordial and productive relations" between the UK and South Korea. A few lines on, and frenzy erupted: "The fortitude and dynamism of the Conservative host of No 10 Downing Street has been well borne out by the record of his many years at the helm of the United Kingdom."

Thirty-somethings

All change at the Group of Thirty, Paul Volcker's favourite think tank: John Walsh has replaced Charles Taylor in the executive director's seat.

The Washington DC-based Group of Thirty is the slimmest of organisations, but punches well above its weight. Under a heavyweight board headed by the former Federal Reserve chairman, it has pitched in on some of the most ponderous issues facing international bankers and finance officials.

Magnetic Pole

The temptations of fuse-mending and electrical rewiring have oddly proved less than overwhelming for Lech Walesa, Poland's former president. Instead of returning to his former employ as a shipyard electrician in Gdansk - as he announced he would in January - Walesa is following the well-beaten path created by many former international statesmen and women, by setting off on the global lecture trail.

First stop is Scandinavia, where he will lecture a gathering of stock exchange types. Then in April he's off to the US. His lecture title is: "Changes in Europe, the past, the present, the future - through Lech Walesa's eyes". Proceeds will go to the Lech Walesa Institute, set up after last November's presidential elections. The cash-strapped institute aims at limiting Poland's disparate opposition to the ruling coalition of former communists and peasant farmers.

Financial Times

100 years ago

The Italian crisis Rome: The Chamber was full to overflowing this afternoon, more than 400 deputies being present. Signor Crispi, who was surrounded by all the members of the Government, immediately rose and announced that the Cabinet had given in their resignations to the King, who had accepted them. At these words the whole House sprang to its feet and cheered loudly for fully five minutes. When at last something like silence was obtained, Signore Crispi continued: "But His Majesty has requested us to continue in office for the despatch of current affairs." Loud groans ensued, and when the uproar had somewhat lessened, Signor Crispi, waving his arms towards the Extreme Left, shouted, "Yes, and keep order, too." With a wild yell the members returned to their seats and hissed and booed vigorously.

50 years ago New York Hedges I imagine that not many British public companies will be anxious to have their shares listed on the New York market is the same experience awaits them as befell Roan Antelope Copper Mines. The company was required to supply about 20 closely filed pages of information which took two months to compile in New York - Lex.

LEGAL DEFINITIONS
patent n. Brit. 1 person commonly found in hospital (sic) or nursery (sic) 2 extremely obvious 3 a right or title esp. to make, use or sell some invention, see ROWE & MANN: acap (ph 071-248 4282)
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FINANCIAL TIMES

Wednesday March 6 1996

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Decision to upgrade Tornados aids Eurofighter
UK scraps plan to lease F-16 fighters from US

By Bernard Gray in London

The UK Ministry of Defence has abandoned the idea of leasing US F-16 fighters and will upgrade its existing Tornado fighters to fill a gap until the Eurofighter comes into service.

The decision consolidates the position of Eurofighter, the next-generation jet being developed by Britain, Italy, Germany and Spain, by removing the threat that the UK could move to a US fighter fleet.

However, it is a blow to Mr David Hart, an adviser to Mr Michael Portillo, the UK defence secretary. Mr Portillo has been strongly challenged in the House of Commons about Mr Hart's role at the MoD in general and on his advice on the F-16 in particular.

An MoD competition between upgrading 100 Tornados and leasing 30 F-16s concluded that sticking with the existing fighter would be far cheaper.

Much of the extra cost of F-16s would have come from the additional support equipment which would have been required. As well as the cost of leasing, the

F-16 would have needed different air-to-air refuelling tankers, training equipment and maintenance facilities. During the competition the proposed upgrades to the Tornado were also slumped down to the minimum to cut costs.

Now British Aerospace will be given a £155m (£92.5m) contract to fit improved electronics to the F3 Tornado fighters which will allow them to carry the latest short and medium range missiles. However, the MoD will not buy additional missiles, and the Royal Air Force will have to use existing air force and Royal Navy stocks.

BAe is already developing large numbers of the new Astraam short-range missile for the RAF, which will be available by the time the first Tornados are upgraded in 1998. However, the Navy, which is the only current user of the Hughes Astraam medium-range missile, only carries a stock of 100 for its P/A-2 Sea Harriers.

Since the UK would only have 100 missiles to arm up to 100 Tornados and 30 Sea Harriers, it

would be reliant on the US being prepared to supply more Astraam missiles in any conflict, which could be fitted to the Tornados very quickly.

The need for action came because the fighter version of the Tornado was increasingly falling behind modern aircraft being used elsewhere, and the introduction of the Eurofighter had been delayed several times. The RAF had become uncompetitive, and the UK was embarrassed at its reliance on US air defence cover in the Gulf War and Bosnia.

The Tornado F3, which is fast and has a long range, will own gain the agility it lacks through fitting the highly manoeuvrable missiles.

The RAF had strongly backed upgrading the Tornado as a low-cost way to fill the gap, partly because it was concerned about the threat posed to the Eurofighter programme by a "Trojan Horse" of US fighters being used by the UK. "Once you put in the infrastructure for one squadron of US jets, it is the easiest thing in the world to buy more," said one officer yesterday.

Japan tries to break budget impasse with talks

By Gerard Baker in Tokyo

The Japanese government last night attempted to break the impasse over next year's budget by offering further talks with the main opposition party about a controversial plan to spend public money on halting out bankrupt housing loan companies.

Representatives of the ruling coalition and the opposition New Frontier party agreed to attempt today to resolve differences over the scheme, which requires the budget to include ¥655bn (\$6.4bn) of public funds towards liquidation of the companies, known as Jusen.

The offer of talks followed another day of inconclusive drama in parliament as opposition members continued physically to block entry to the committee chamber where the budget vote was due to have been held on Monday.

The opposition wants the government to cancel the planned public contribution to the scheme and force banks to pay more towards the liquidation of the Jusen, which have buckled under the weight of their non-performing loans.

The NFP earlier rejected a proposal by the government to increase the apparent burden of the banks in the bailout plan. The coalition said increased restructuring efforts by the nation's big banks would enable them to provide a further ¥500bn towards the liquidation over the next seven years.

The extra profits generated by the restructuring would produce higher tax returns, which would partly offset the government's contribution to the scheme, Mr Kazuo Watanabe, deputy chief cabinet secretary, claimed.

Under the original scheme, the banks that founded the Jusen are required to pay ¥3,500bn towards their liquidation, along with ¥1,700bn from other banks and ¥530bn from the other large group of creditors, the nation's agricultural co-operatives.

But the new proposal contained no firm commitment to require the banks to improve profitability. Opposition politicians said it was an attempt to "deceive" the public.

The government wants the spending plan approved by the end of this week, well in advance of the new fiscal year which begins on April 1. But without co-operation from the opposition, that prospect is fast receding.

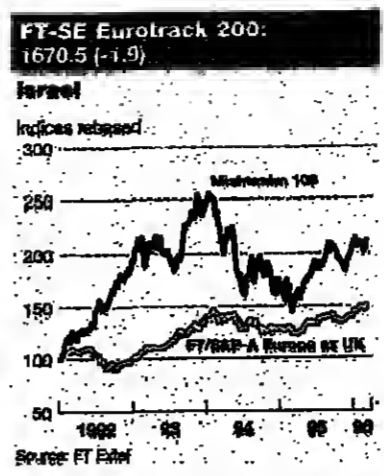
The two sides will discuss details of the government's latest proposals, which also include a commitment to establish a parliamentary investigation into the causes of the debacle, and a moratorium on finance ministry officials taking up posts in the private sector on retirement.

Mad Hatter enters housing loan fray, Page 5
Editorial Comment, Page 11

THE LEX COLUMN

Israeli investments

For investors prepared to look past the political turmoil, Israel has attractions. The economy grew by nearly 7 per cent in 1995. This year it is expected to expand by 6 per cent, fuelled by a wave of immigrants and the gradual erosion of the Arab boycott. Inflation is down to single digits and the government's budget deficit for 1996 is estimated at 2.5 per cent of gross domestic product - better than many European countries. Israel is running a big current account deficit, but that is only to be expected as economic growth has been exciting in imports.



Source: FT Data

Strong fundamentals made Israel one of the best performing emerging markets last year, with a rise of 17 per cent in dollar terms. But with forecast average earnings growth of 14 per cent this year, the stock market is still trading on just 11 times prospective earnings. A weaker shekel should help exports, which make up 80 per cent of profits, and the index is peppered with high-technology electronics and pharmaceutical companies.

In the short term, the market may suffer from the after-shock of the recent bombings. But longer term, the harder line being adopted by Mr Shimon Peres, the prime minister, could help his Labour party win the May election. That would be regarded as positive by international investors, who now account for around 10 per cent of the market's total capitalisation, compared with 1 per cent two years ago. Even allowing for the political risks, the market looks attractive.

While the prospects for the Swiss banking sector may have been improved by rationalisation, slow sector growth continues to cap profits growth. At around 18 times 1995 earnings and with return on equity of around 9 per cent, CS still looks expensive.

Investors should not count on it. The most logical buyers for Nynex and Videotron would be other UK cable groups, as consolidation would out costs and boost their purchasing power. But because few have cash, any deal is most likely to be an all-stock merger. And if the precedent of last year's merger between TeleWest and BEC Communications is anything to go by, a premium would not be paid. While some rise in Nynex and Videotron's share price would be

appropriate under such a scenario to reflect the benefits of consolidation, there should be a similar rise in the purchaser's stock. It would also not be anything like 20-25 per cent.

One cannot rule out the possibility that a big foreign telecoms group will pay cash - aiming to use cable as a platform to compete against BT in telecoms. But of the names bandied about, only KPN of the Netherlands has so far shown interest in UK cable. The others - AT&T and Deutsche Telekom - seem unlikely to be attracted by an industry that is still fragmented and so unattractive for mounting a national telecoms service. Of course, if consolidation does proceed again that may change.

CRH

CRH, the Irish building materials group, is the white sheep of the sector. Against the trend, it managed to notch up an impressive 32 per cent rise in 1995 profits. Its long-term performance is equally impressive, with compound growth of nearly 80 per cent annually for the last 25 years.

The question is whether this means its fortunes are due for a reversal. The company warned yesterday it was unlikely to repeat last year's profit growth. Extremely favourable conditions in Ireland cannot continue indefinitely, and the US market has probably peaked; these were the largest contributors to profits last year.

But there is still plenty left to go for. Ireland and the US may no longer drive growth, but there is room for an upturn in other markets, such as the UK. Furthermore, the company's formula for success is to boost earnings through a steady stream of small acquisitions, financed out of its strong cash flow. Quite simply, it has consistently chosen and managed these acquisitions better than competitors, and that strategy shows no sign of stalling.

The stock's rating, more or less in line with both the sector and the UK stock market, also suggests it is undervalued given its record. This is partly because, although it has a London listing, the fact that it is domiciled in Ireland means it is not considered a "major" for UK fund managers. Given the international profile of the business and the limited exchange rate risk, any discount is likely to be further eroded.

Additional Lex on UK housing, Page 18

Fifa tackled over royalties on footballs



Continued from Page 1

Switzerland is not a member of the European Union. Fifa said yesterday it could not comment because it had not been informed officially of the Commission's investigation. However, it pointed out that only balls used in international matches had to carry the new Fifa logo. It also said money from the scheme was to be used to fund its youth football initiative.

Brussels says the cost of the royalty system, which was introduced at the beginning of this year, adds around \$7m to the cost of producing and retailing each ball once the necessary tests required for use of the Fifa logo have been completed.

Not all manufacturers, however, are against the scheme. Adidas welcomed the licensing programme and said the price of its footballs had not risen since its introduction.

The Commission's investigation could result in hefty fines if it finds that Fifa has abused its position as an exclusive certifier of high quality footballs.

EU states ordered to pay for breaches of European law

By Robert Rice, James Harding and Deborah Hargreaves in London

European Union states must compensate individuals and companies for losses resulting from government failure to implement EU laws correctly, the European Court of Justice ruled yesterday. The ruling means the UK government must pay damages to Spanish fishermen banned from British waters in 1989 and Germany must compensate a French brewery prevented from exporting beer to Germany.

Ninety-seven Spanish and Dutch fishermen are suing the UK government for up to £30m (\$48.2m) after it legislated in 1988 to close a loophole which allowed foreign trawler owners to circumvent EU fishing quotas by registering their boats under the British flag. In 1991 the act was withdrawn after the Luxembourg court ruled it incompatible with European discrimination laws.

In the German beer case, Bruserie du Pêcheur, a French brewery, is suing the German government for DM1.8m (\$1.2m) after it was forced to stop exporting to Germany between 1981 and 1987 because its beer did not comply with German purity laws. In 1987 the European Court ruled the German law was contrary to European law.

from a 1991 landmark decision by the Luxembourg court - in the Francovich case in Italy - in which it ruled that EU states could be forced to compensate people for government breaches of EU law.

The court said states would only have to pay damages if three conditions were met: the EU law breached must confer rights on individuals; the breach must be sufficiently serious; and the damage must have been directly caused by the breach. An infringement is considered serious if it is "manifest and grave, looking at such factors as whether the EU rule was clear and precise and the measure of discretion left to the state in implementing it."

National courts will also have to decide on the level of damages, although the European Court said they must amount to full compensation for the injury suffered and must be no less than the compensation for similar claims under domestic law.

The court rejected the UK government's argument that damages should be payable only when the breach of EU law was intentional or the state had been negligent.

Argentina senses tougher UK stance, Page 5

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FT WEATHER GUIDE
Europe today
Moist air will be drawn over the North Sea into the Benelux and Germany along the eastern flank of a high pressure area over the British Isles. As a result, cloud will be persistent with patchy drizzle and overnight fog. Northern France will be cloudy but cloud will be scattered further south. After early morning fog, most of the UK will be fair and calm. Western parts of the UK will have sunny intervals, but eastern England will be cloudy with patchy drizzle. The southernmost Iberian peninsula will have plenty of rain but elsewhere it will be dry with frequent sunny intervals. Abundant sun is expected over Italy. Greece will turn dry but rain and high-elevation snow will occur in Turkey.
Five-day forecast
High pressure will shift towards western Russia from tomorrow. Calm conditions over central Europe will change to a drier south-easterly flow. As a result, it will become fair with bright intervals. Temperatures will rise to seasonal levels over western Europe as milder air is transported north. The Baltic states, Poland and Belarus will continue to have light daytime frosts. The eastern Mediterranean will become more settled but central regions will continue to have showers.
TODAY'S TEMPERATURES
Maximum Celsius sun 11
Minimum Celsius sun 7
Albu Dhabi sun 29
Aizu cloudy 31
Algiers cloudy 17
Amsterdam sun 7
Athens sun 27
B Aires sun 25
Bham cloudy 7
Bangkok sun 36
Barcelona sun 12
Cairo sun 11
Cercas fair 30
Cardiff cloudy 7
Casablanca shower 18
Chicago snow 1
Cologne rain 8
Dakar cloudy 24
Dahlgren sun 26
Doha sun 26
Dubai cloudy 2
Dublin cloudy 7
Dunfermline fair 18
Edinburgh cloudy 8
Faro rain 16
Frankfurt cloudy 5
Geneva shower 18
Gibraltar sun 15
Glasgow sun 9
Hamburg rain 8
Helsinki cloudy 3
Hong Kong rain 23
Jersey sun 33
Kuala Lumpur sun 24
Kuwait sun 20
L.A. Angeles sun 21
Las Palmas sun 21
Lima cloudy 27
Lisbon sun 16
London cloudy 8
Luxembourg cloudy 8
Lyon sun 29
Madera shower 17
Madrid fair 13
Managua shower 14
Manila sun 28
Manchester fair 6
Marseille sun 20
Melbourne cloudy 20
Miami sun 31
Moscow sun 28
Mumbai sun 28
Nassau sun 29
New York sun 10
Nice fair 17
Nicosia sun 13
Oslo cloudy 3
Paris cloudy 6
Perth sun 29
Prague cloudy 2
Rangoon fair 33
Reykjavik rain 6
Rome sun 10
St. Francisco fair 17
Seoul fair 12
Singapore sun 31
Stockholm cloudy 0
Sydney sun 28
Taipei sun 28
Tampere sun 10
Tbilisi sun 10
Tientsin sun 10
Toronto sun 10
Vancouver shower 11
Vladivostok sun 10
Warsaw sun 10
Washington shower 17
Wellington fair 17
Winnipeg sun 14
Zurich fair 6



Vertical advertisement on the right edge of the page, partially obscured and difficult to read. It appears to be a recruitment or training advertisement.

Eni's estimated results in line with forecasts

By John Simkins in Milan

The dog with six legs — the emblem of Eni, the Italian oil, gas and chemicals group — again raced ahead in 1995 and has not disappointed its new backers.

The government floated 15 per cent of the group, which is among the world's eight leading quoted oil companies, last November and shareholders will be offered a reward in the form of a dividend pay-out totalling at least 40 per cent of estimated 1995 net profits of L4,300bn (\$2,77bn).

The estimated consolidated results, released late on Monday, were in line with expectations — net profits were up 33 per cent — and follow a strong performance in 1994.

Restructuring under Mr Franco Berobé, managing director, has involved concentrating on exploration, production, refining and distribution and the sale of former loss-making non-core activities.

The bulk of these disposals last year took place in the petrochemicals sector, where operating income rose by L1,900bn to L1,950bn. Enichem, the chemicals subsidiary, will return to profit this year after incurring a L87bn net loss in 1994.

Mr Alan Marshall, oil analyst at Robert Fleming Securities, the UK stockbroker, said he expected Eni's share price — which closed last night L57 higher at L6,007, after touching a high of L6,050 — to outperform the Italian market this year. Eni's issue price last year, fixed at the bottom end of the range during difficult market conditions, was L5,250.

Mr Marshall said he had a 12 months target for the share price of L6,700. He said: "At under 12 times earnings per share in 1995 and under four times cash flow per share, it looks quite cheap both against the market as a whole and the oil and gas sector."

"The company is still running quite a lot of debt, and oil and gas companies are not usually highly geared."

Net debt was reduced by L6,000bn to L17,800bn, bringing the net debt to equity ratio, including minority interests, to 0.7 compared with 1.1 in 1994.

Exploration and production, which is conducted by Agip, boosted operating income by 8 per cent to about 14,000bn, partly because of higher oil prices. Natural gas supply, in which the main division is Snam, increased operating income by 5 per cent to L3,250bn. Italy imports two-thirds of its natural gas consumption to conserve domestic reserves, with Eni buying from Algeria, Russia and the Netherlands.

Besides completing its disposals, Eni will upgrade its Agip Petrol service station network. A further sale of shares will depend on market conditions and a decision by the government. The Treasury controls a golden share which prevents shareholders from taking more than 3 per cent without its permission.

Belgian bank to 'stand alone'

By Neil Buckley in Brussels

Générale de Banque, Belgium's largest bank, said yesterday its philosophy remained to be a "stand-alone" organisation, despite recent calls from ministers for large Belgian banks to merge and form a "megabank", and speculation that it was considering a merger with Banque Bruxelles Lambert, the fourth biggest bank.

The statement came as the bank announced an 8.1 per cent increase in 1995 net profit to BF13.7bn (\$451.7m), although provisions, write-downs and depreciation increased 27 per cent to BF20.2bn, partly due to provisions on loans to Eurotunnel, the Channel tunnel operator.

Asked if Générale de Banque would consider merging with other Belgian groups, Mr Ferdinand Chaffart, chief executive, said: "It is clear that our basic philosophy is a philosophy of stand-alone." However, he added, "other possibilities" would never be ruled out.

His comments followed a call in January by Mr Philippe Maystadt, the Belgian finance minister, supported by Mr Elio Di Rupo, economics minister, for the creation of a Belgian banking group that was large enough to compete in the international market.

Their statements were echoed by Mr Etienne Davignon, chairman of Société Générale de Belgique, which holds 30 per cent of Générale de Banque, who said the bank should look for links that would add value and improve competitiveness.

Mr Davignon told a Belgian newspaper he did "not exclude a merger of Générale de Banque with other Belgian banks".

Mr Chaffart said yesterday Générale de Banque had already made great strides in its attempts to develop from "a Belgian bank with branches abroad into a European bank with its roots in Belgium".

The proportion of net profit coming from outside Belgium was expected to increase from 40 per cent in 1995 to about 60 per cent this year.

Last year the bank acquired Crédit Lyonnais Nederland, the Dutch subsidiary of the French state-owned bank, for BF21.5bn, giving it a foothold in the Dutch market. It also

acquired 73 per cent of Fina-gest, France's eighth-largest asset management company, for FF850m (\$131.8m).

Mr Chaffart said the bank was still seeking acquisitions, although a rights issue might be required to raise funds.

Générale de Banque's gross income increased 5.6 per cent to BF113.4bn, with interest income up 1 per cent, and non-interest income up 15.3 per cent, despite the slowdown in economic growth which Mr Chaffart said had produced only a slight increase in loan demand in most European countries last year.

General expenses increased 2.5 per cent to BF88bn. The bank proposes to increase its net dividend on ordinary shares from BF360 to BF385.

General expenses increased 2.5 per cent to BF88bn. The bank proposes to increase its net dividend on ordinary shares from BF360 to BF385.

the market, generating its growth through high volume.

The volume was available because almost 70 per cent of Germans in the 45 to 59 age group were wearers; that applied to nearly 100 per cent of senior citizens, and with the age pyramid for Germany becoming increasingly heavy, there were indications that there was further scope for the market to expand.

These opportunities still exist. But, says Mr Stephan Muehlheim at brokers Dillon Read, stocks in and around the retailing sector have had to battle with depressed German consumption over the past two years: department stores, for example, sadly underperformed the Dax index last year with a rise of just 0.1 per cent, following a 15.1 per cent fall in 1994.

Fielmann disappoints the market

By William Cochrane

On Monday, Fielmann joined the growing list of busted German growth stocks. Europe's biggest leading optical chain may have revealed a 43 per cent leap in 1995 profits, but it then forecast a mere 5 per cent gain in the current year, blaming increased marketing costs.

The preference shares, which had rocketed by more than 70 per cent during the past 12 months, immediately came back DM13.30, or 15.7 per cent, to DM70.80, and fell another DM1.90 yesterday to DM68.90, a 2.7 per cent drop.

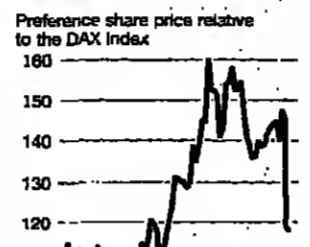
The optical group joined a dejected trail of recent disappointments: Escorn, the computer group; Hornbach, the do-it-yourself company; and Wella, the hair care group, were among the investment selections when growth stocks became fashionable last year.

Traditionally, investors in the German market have preferred big cyclicals, like the automotive groups and chemicals, or the defensive qualities of its financial and utilities sectors.

Fielmann's attraction was its combination of international purchasing power and vertical integration. The group is a spectacle frame manufacturer, retailer, engineer and ophthalmic optician.

The company had been producing double-digit sales and earnings growth in recent years, and some analysts were going for annual sales growth close to the 20 per cent mark

the market, generating its growth through high volume.



over the next three to five years. In Germany, the arguement went, 37m people wear spectacles. Fielmann produces the least expensive spectacles on

Bayerische Vereinsbank lifts payout after late surge

By Peter Norman in Bonn

Bayerische Vereinsbank, the Munich-based bank, yesterday increased its dividend for 1995 after strong growth in group profits in the second half of last year.

The bank, which last year changed the nominal value of its shares to DM5 from DM50, will pay DM15 per DM5 nomi-

nal share against DM14.5 per DM50 share the previous year.

Group net profit increased 16.3 per cent, from DM365m in 1994 to DM667m (\$445m), while operating profit after loan loss provisions rose 29.9 per cent, from DM1,061bn to DM1,383bn.

Joining a slowly growing trend among large German companies to greater transparency in financial reporting, the bank said its annual report,

dne on March 21, would give some important group results according to International Accounting Standards.

Yesterday's figures pointed to a strong recovery in second half profits. The bank earlier reported that its operating profit at the end of June was 6.6 per cent less than half the operating profit reported for 1994. Using the same method of comparison, operating profits

at the end of September were 5.3 per cent up on three quarters of the previous year's result.

The company said the recovery reflected a strong performance by group members, particularly Vereinsbank's mortgage bank subsidiary. The group's stock of mortgage lending increased 15 per cent to DM107bn. There was also a sharp increase in net profit

on trading on the bank's own account, from DM7m in 1994 to DM270m. In 1993, the group earned DM318m from own-account trading.

Profits last year were also helped by a 24 per cent drop in loan loss provisions, from DM949m to DM721m. The group's interest surplus increased 2.7 per cent to DM4,432m, while commission income dropped 2.3 per cent to

DM1,061bn. Running costs increased 6 per cent to DM3,661bn but this included substantial investment in Germany and abroad.

The bank said the rate of cost increases was halved last year from 1994, when outlays had jumped from DM3,081m in 1993 to DM3,460m.

The group balance sheet total rose 12.1 per cent last year to DM357bn.

Haig Simonian talks to manufacturers at the Geneva Motor Show, which opened yesterday

Audi upbeat about demand for new models

Audi, the executive cars subsidiary of Germany's Volkswagen group, expects another strong year in 1996 on the back of new models and continuing strong demand for its highly-popular A4 saloon.

Mr Herbert Demel, chairman, said in an interview that the company "hoped to repeat the success of 1995", this year. Audi's full results will not be published until April. However, analysts expect pre-tax profits to exceed DM100m

(\$271m), compared with DM118m in 1994.

Profits before tax in the first half of last year jumped to DM925m, while sales for the full year climbed almost 20 per cent to more than 447,000 units, buoyed by the A4.

Audi built about 260,000 A4s and 30,000 of the previous Audi 80 model in 1995. Mr Demel said sales this year were expected to remain stable, in spite of the introduction of an entirely new car, the smaller A3, which

is expected to attract at least 25,000 potential A4 buyers in a full year.

The new model, a three-door hatchback built on the platform of VW's next generation Golf model, due next year, would go on sale in the autumn. Mr Demel declined to give a sales target, but said Audi had the capacity to build up to 100,000 units a year.

Sales would start with a range of medium-priced vehicles, including a 125 hp

mid-range model and a 90 hp diesel. A high-performance 150 hp turbocharged version would follow.

The A3 marks a broader step in Audi's drive to broaden its range and capture younger motorists. Mr Demel said the introduction of convertibles, coupés and station wagons had already lowered the average age of owners to about 43.

The appeal to the "young in spirit", reinforced by the A3, should be accelerated by the

new aluminium TT convertible and coupé, unveiled last year. Audi expects to build about 20,000 coupés a year, with sales starting in 1996. Sales of the convertible, expected to be launched in 1996, should reach about 10,000 units annually.

The new cars will continue Audi's innovative use of aluminium for some of its vehicles. Mr Demel confirmed that parts of its next-generation A6 saloon would be aluminium.

■ The Peugeot chairman, Mr Jacques Calvet, said he expected the French car market to grow 1 per cent in 1996. In December, Mr Calvet had seen flat growth for the market this year. He reiterated an earlier forecast that the European car market would grow by between 2 per cent and 2.5 per cent this year. His European forecast agreed with that of Mr Louis Schweitzer, Renault's chairman. Mr Calvet said that in France, after a calamitous December, sales had rebounded in January and February. He said that because of currency factors, manufacturers in Italy, Spain and the UK had a considerable advantage over French and German groups.

■ Mr Calvet warned that Peugeot would stop buying from Valeo, the French components group, if the car parts company were taken over by a group that he considered detrimental to the French car-maker's interests. "If it [the buyer] did not please me, I would progressively halt my purchases from Valeo," Mr Calvet said. He said he did not want Valeo controlled by a carmaker — or a components group under the control of a carmaker or a supplier — which would subsequently win a monopoly position.

■ Mr Helmut Werner, chairman of Mercedes-Benz, said the German carmaker's 1996 results would be at least as good as the DM2.2bn-plus figure it achieved in 1995. In 1994, Mercedes generated a profit of DM1.85bn. The Mercedes chairman also said the company as a whole was making a return on capital of about 12 per cent. Paris of the company were at more than 30 per cent.

Mr Werner said production of the E-class cars had reached capacity after strong demand for the car at the start of this year. He said January domestic car sales had climbed 15 per cent, with US car sales up 26 per cent and Japanese car sales up 21 per cent from a year earlier. Mr Werner was speaking at a dinner to launch Mercedes' E and C class estate models and V class family bus.

■ General Motors (Europe) 1995 net profit rose 14.5 per cent from \$695m to \$796m a year earlier, Mr Louis Hughes, General Motors vice-chairman, said.

EUROPEAN NEWS DIGEST

Veba and Metro in digital TV venture

Two of Europe's largest companies, Veba of Germany and the Swiss retail group Metro, yesterday said they would join forces to introduce digital television in Germany, putting paid to painstaking efforts to ensure a common digital television standard in Germany, Europe's largest market.

The Veba/Metro alliance will be pitted against another consortia of German companies, including the state-owned telecomm operator Deutsche Telekom and the media group Multimediale Betriebsgesellschaft (MMBG), in which Veba was supposed to take a stake.

News of the alliance is a significant success for Mr Leo Kirch, the German media mogul who had been at loggerheads with the MMBG consortium on the question of which decoder should be used to access digital television services such as video on demand and home shopping. Veba and Metro yesterday said they would use a decoder launched by Mr Kirch last year, known as the d-box, and not MMBG's rival technology. All of the German companies involved in digital television appeared to have reached preliminary agreement on a single standard in December.

The rival MMBG consortium also includes ARD and ZDF, the two German public-sector television channels and Canal Plus, the French pay-TV channel partly owned by Bertelsmann. The Veba/Metro alliance said it would start its first field trials in coming months and expected to introduce a full range of digital television services not later than September 1.

Portucel ahead five-fold

A cyclical rise in pulp prices helped Portucel-Industrial, the world's second largest producer of bleached eucalyptus pulp, lift net consolidated profit almost fivefold to E18.1bn (\$18bn) in 1995 from E3.2bn in 1994. The strong performance was driven by a sharp rise in pulp prices, which peaked in the third quarter of 1995. But analysts forecast a fall in the group's earnings this year due to an earlier-than-expected downturn in the pulp cycle.

Portugal's new socialist government plans to continue the privatisation of Portucel-I in 1997 following a restructuring of the country's pulp and paper sector. It is expected to attract plans for some form of merger or association between Portucel-I, Soporcel, Portugal's second-largest pulp and paper producer, and Inapa, a paper manufacturer, which are all directly or indirectly controlled by the state. An initial public offer of 40 per cent of Portucel-I raised E335.65bn last June.

Sales rose 34 per cent to E570.5bn from E522.5bn in 1994, the group said. Exports, mainly to western Europe, represented 66 per cent of the total. Net cash flow climbed 150 per cent to E25.5bn. Portucel will pay a 1996 dividend of E345 a share, representing a dividend yield of 5.1 per cent. The company said it was setting aside E1.85bn to ensure a similar level of payments in years when profits were hit by cyclical downturns.

DG Bank bounces back

DG Deutsche Genossenschaftsbank, the umbrella organisation of Germany's co-operative banks, bounced back to normality after a crisis in the early 1990s. It reported an 18.8 per cent increase in 1995 operating profits to DM533m (\$348m) before risk provisions, and a rise in the interest surplus by 6.3 per cent to DM1.18bn. DG Bank has decided to resume dividend payments to its owners, a decision which Mr Bernd Thiemann, chairman, described as an "important signal".

DG Bank's financing operations increased income by 8.7 per cent to DM165.3m. After taking out individual and country risks operating profits were DM345.8m after a loss of DM21.4m in 1994.

Elektrowatt rises to SFr178m

Elektrowatt, the Swiss electricity and engineering group, posted net profits after minorities up from SFr172m to SFr178m (\$148m) for the year to the end-September. Operating profits rose from SFr460m to SFr498m on sales up from SFr4.94bn to SFr4.98bn. Earnings per share fell from SFr21.80 to SFr20.50. The group expected a further improvement in sales and operating profits in the year to Sept 1996. Elektrowatt said in January it would propose an unchanged SFr150 dividend.

Fokker 'must go bankrupt'

Fokker, the struggling Dutch airplane maker, has repeated that bankruptcy was an unavoidable step in its continuing quest to secure its future. Mr Ben van Schaik, management board chairman, told Dutch television, "Only then can Fokker have any future".

VNU posts 25% improvement

Better results from business publishing in the US and Europe were the main factor behind a 26 per cent increase in 1995 net profits before extraordinary items, at VNU, the Dutch publisher. Net profits before extraordinary items rose from F1 212m to F1 274m (\$166m), producing a 19 per cent increase in profits per-share from F1 1.21 to F1 1.44. VNU's dividend is to be raised 20 per cent from F1 0.40 to F1 0.48. Net profit, including extraordinary items, more than doubled from F1 208m to F1 430m, largely reflecting an earlier reported F1 182m gain on the sale of Disclosure, the group's US information company. Turnover rose 10 per cent to F1 3,056bn, with acquisitions accounting for slightly more than half the increase.

Porsche sees surge in output

Porsche, the German sports car group which saw sales plummet in the early 1990s, expects to boost output to 18,500 units in the 1996-96 financial year, from 17,268 in 1994-95 and virtually double that to about 30,000 in 1996-97.

The sharp expansion would come from the group's new two-seater "Boxster" convertible due to be launched in September. Mr Hans Riedel, Porsche's head of sales and marketing, said more than 10,000 customers had made down-payments on Boxsters. Scorching fears that many would be trading down from Porsche's dearer 911 range, he said research into 2,500 potential customers had shown that 80 per cent were first-time buyers.

Porsche expected output to be divided equally between the 911 and the Boxster once the newcomer was in full production. Mr Wendelin Wiedeking, Porsche's chief executive, revealed the car, with a mid-mounted six-cylinder engine, would cost DM76,500 (\$52,000) in Germany.

The company, which made net profits of DM10m in the first half of the current year, declined to give a full-year forecast beyond saying it should be "clearly better". Sales to the end of January 1996 jumped 17 per cent to 9,570, compared with the same period last year.

Danish shipyard to close

A reconstruction plan to save Copenhagen's Burmeister & Wain Shipyard collapsed amid mutual recriminations between the yard's creditors. The Danish company's receivers said they would now close the yard in about 14 days when it had completed its last order.

The reconstruction plan was provisionally agreed on February 17, but yesterday American insurance companies holding convertible bonds in the shipyard said the agreement terms had been violated.

Two creditors, insurance company Old Mutual and Chemical Industrial Bank, have made a side-deal by which they would receive cash for their bonds from Japan's Mitsui Engineering Company. Mr Wilbur Ross, of Rothschilds in New York, acting for US bondholders, said this constituted unfair preferential treatment for two creditors.

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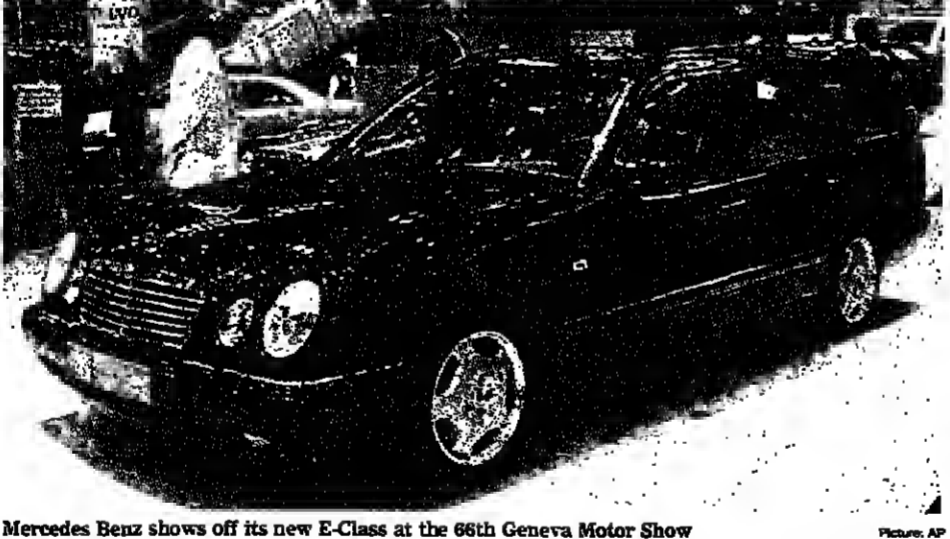
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Mercedes Benz shows off its new E-Class at the 66th Geneva Motor Show

Lotus confirms takeover talks

Lotus, the UK engineering company best known for its sleek sports cars, is talking to potential buyers. However, yesterday it denied it had already been sold to Daewoo, the acquisitive Korean industrial group.

"The shareholders have decided to allow other parties the opportunity to participate through investment... to strengthen the company structure," the company said.

All questions about potential investors were referred to a prepared statement, which said: "The negotiations do not involve financial organisations, but industrial companies with strong financial resources to carry out their own programmes in conjunction with those of Lotus to take advantage of synergies."

Lotus did not deny it was talking to Daewoo. However, Mr Neeral Kapur, the UK company's finance director, said reports of a sale were "com-

pletely 100 per cent incorrect".

The long-term future of Lotus, which has about 1,000 staff at its base near Norwich, has been put in doubt because of the financial difficulties of Mr Romano Artioli, its owner.

His problems came to a head when a court in Modena, Italy declared Bugatti Automobili insolvent last year. Mr Artioli re-established Bugatti to build highly-expensive "supercars" in the early 1990s and bought Lotus from General Motors two years ago.

Bugatti's financial plight triggered speculation of possible side-effects for Lotus. However, the UK company has maintained it is unaffected by the court action.

The impact of the Bugatti bankruptcy — and the ultimate ownership of Lotus, as well as its relationship with Mr Artioli's other activities — was thrown into confusion yesterday.

Following the court action,

Mr Artioli's lawyers appear to have conducted various legal moves to ensure Lotus's isolation from Bugatti and its Luxembourg-based holding company (which was also believed to control Lotus).

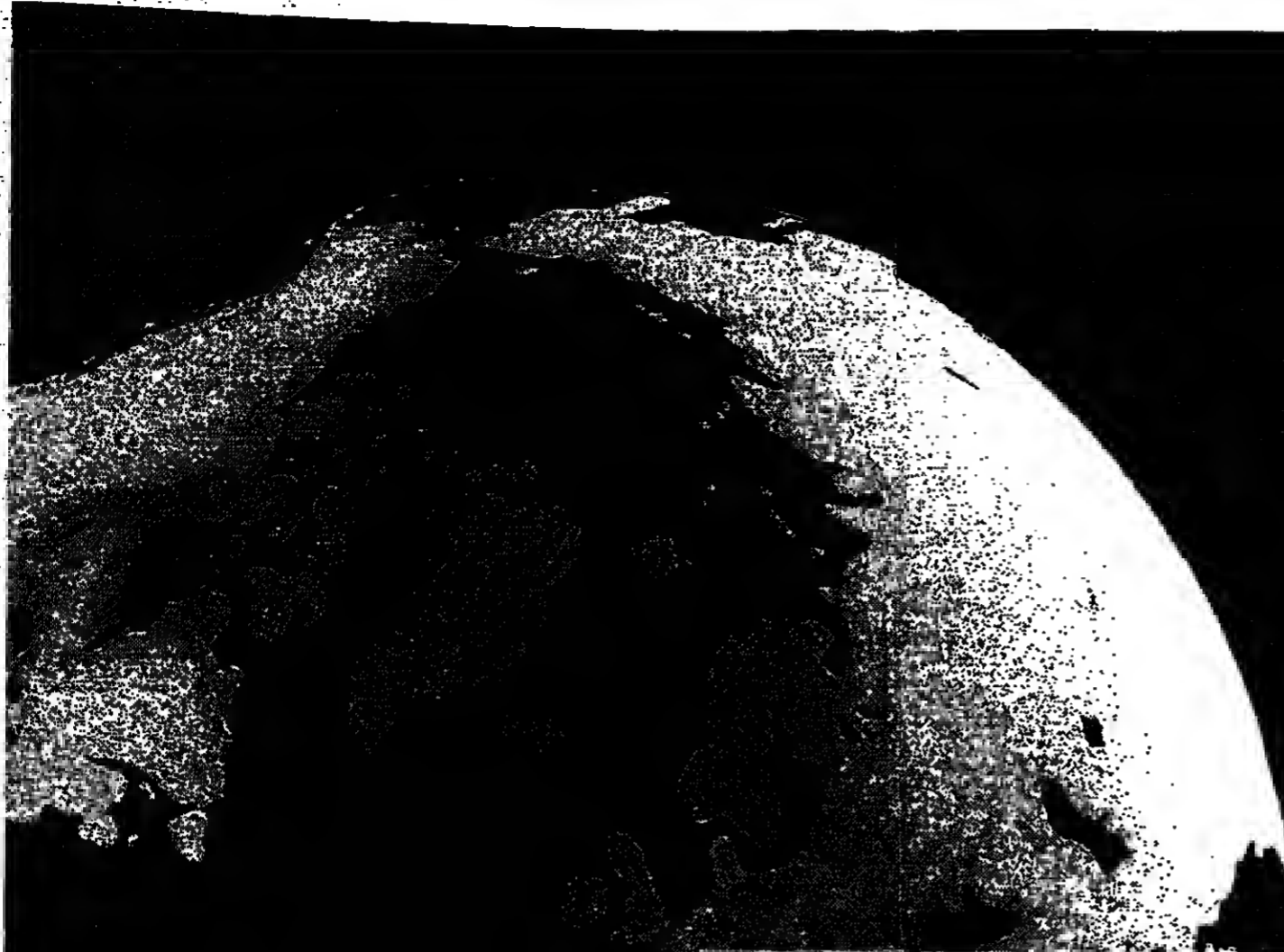
The company says there is strong demand for its cars and engineering services. Net earnings rose to £5.3m (\$8.9m) last year from £3.6m, while sales climbed by more than 20 per cent to £58m from £54m.

Mr Kapur said Lotus needed extra capital to finance its engineering and carmaking activities. Engineering, which has always been the most attractive side of the business, has recently invested in new test facilities and has a long order book.

Any sale to a big carmaker could compromise its independence to solicit business from other car companies, raising doubts about the likelihood of a sale to Daewoo.



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CS FIRST BOSTON

INTERNATIONAL COMPANIES AND FINANCE

Competition and costs take toll on Haeco

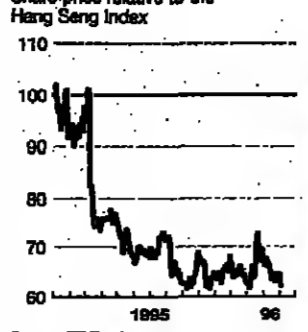
By John Riddling in Hong Kong

Hong Kong Aircraft Engineering Company (Haeco), a listed subsidiary of the Swire group, yesterday announced a sharp fall in profits for 1995 and warned of further difficulties and a fall in margins this year.

Impact on market rates," the company said.

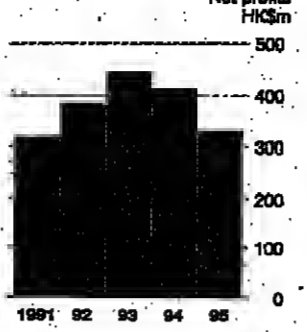
Mr Mark Simpson, head of research at ING Barings in Hong Kong, said the results were below expectations and the latest in a series of disappointments from the company. He said the main concern was the fall in operating margins, to about 11 per cent in the second half of the year from about 17 per cent in the comparable period in 1994.

Haeco



Source: FT Estimate

Net profits HK\$m



Source: FT Estimate

For the moment, however, the outlook is difficult. "It is likely that margins in all areas of the company's business will continue to suffer," said Haeco.

erode profitability, it said. In addition, Haeco said that Cathay Pacific, its biggest customer and another member of the Swire group, was expected to reduce its requirements for heavy airframe maintenance in Hong Kong. This is partly

because the two-way hangar at Taeco, the company's associate, becomes operational this year.

Taeco, which is based in Xi men in southern China, is expected to see strong growth as a result of its low costs. However, the Swire group claims the overall growth in air traffic and maintenance requirements in the region will be boosted by the completion of Hong Kong's new airport. This is scheduled for April 1997.

Thai telecoms soar despite operating weakness

By Ted Barclacke in Bangkok

TelecomAsia and Thai Telephone and Telecom, Thailand's two private operators of fixed-line telecommunications services, have reported substantial profit growth for 1995.

NEWS DIGEST

O'Reilly's S Africa arm advances 45%

Independent Newspaper Holdings, the South African subsidiary of Irish entrepreneur Mr Tony O'Reilly's Independent Newspapers, posted a 45 per cent increase in attributable income to R60.7m (\$15.6m) for calendar 1995, its first full year of trading.

Pacific Dunlop court exclusion

Pacific Dunlop, the Melbourne-based conglomerate, said yesterday that a US court had excluded non-US persons from the class action being brought against the company's electronics heart pacemaker unit.

Meekatharra to proceed

Meekatharra Minerals, the small Australian exploration company, said it planned to go ahead with development of a gold mine at Way Linggo in southern Sumatra.

Orlando Wyndham expansion

Perrier-Ricard, the French wines and spirits group, is to expand production facilities at its Orlando Wyndham winery in South Australia.

Toshiba Corp raises forecast

Toshiba Corp's sales of personal computers worldwide will exceed ¥400bn (\$3.8bn) in the business year to end-March 1996, much more than the company's previous forecast of ¥363bn, the company said yesterday.

Honda Motor in Vietnam

Honda Motor is awaiting final approval for a project which would see the Japanese company's motorcycles produced for the first time in Vietnam.

Sales climb to \$760m at De Beers

By Mark Ashurst in Johannesburg

De Beers, the South African diamonds group, said in the wake of last week's pact with the Russian government to preserve its dominance of world diamond supply, yesterday posted a 21 per cent increase in income from diamond sales in calendar 1995, to \$760m.

Combined attributable earnings for De Beers Consolidated Mines and De Beers Centenary rose 11 per cent to \$560m to \$624m. Equity-accounted earnings were up 18 per cent to \$988m as retained earnings from associates rose 33 per cent to \$362m.

Combined final dividends increased 15 per cent to 67.4 cents per De Beers/Centenary linked unit, which boosted the year's dividend to 82.9 cents from 84.4 cents.

Analysts welcomed the terms of the deal with the Russian government, which guarantees exclusivity for De Beers to buy 95 per cent of Russian diamonds for export and distribution through the group's London-based Central Selling Organisation.

Net diamond stocks were \$4.7m against \$4.4m, with stockpiles at the South African Venetia mine 43 per cent higher at R1.6bn (\$410.3m) compared with R1.2bn.

Income from investments, notably Anglo American and its industrial arm, Amic, was \$223m against \$196m.

Although no-diamond interests comprised 58.6 per cent, or R35.5bn, De Beers was traded at a discount of 28.7 per cent to net asset value.

Steady growth at Telekom Malaysia

By Alan Cane

Telekom Malaysia, the country's largest listed company, produced revenues and net profits for 1995 generally in line with analysts' expectations. The company, which was partially privatised four years ago, said it was confident of sustaining growth.

The group reported pre-tax profits of M\$1.93bn (US\$758m), a 15 per cent improvement on the year before. Revenues rose 17 per cent in 1995 to M\$2.5bn, while earnings per share were up 13 per cent to M\$0.75.

Mr Mohamed Said Mohamed Ali, chief executive, said it had been a satisfactory performance despite a year of reorganisation and restructuring. He said the group intended to

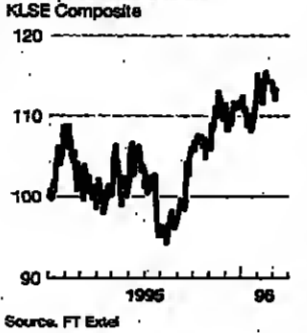
use its profits in capital expenditure to increase telecoms facilities for its customers.

The group would match or increase its capital expenditure to meet its obligation to provide universal service and to improve services in rural areas, he said.

Residential line growth, at 10 per cent, was weak in the second half of the year compared with 19.5 per cent in the first six months. Business line growth, however, was 17.9 per cent in the second half compared with 16.5 per cent in the first, so that growth in this sector exceeded residential line growth for the first time since 1991.

Mr Andrew Harrington, Asian telecoms analyst with Salomon Brothers, said he believed the decline in residen-

Telekom Malaysia



Source: FT Estimate

tial line growth in the latter part of the year was an aberration. "We do not believe that business line growth can exceed residential line growth

in the next few years, as expect the historic trend to re-emerge in 1996.

The group's growth in the past few years, Telekom Malaysia is now experiencing diminished returns characterised by declining margins, falling revenue per line (masked by residential line growth in 1995) and shrinking waiting lists.

Concern that the group's profitability would be affected by increased competition from the government awarded of state licences to nine companies was played down by Telekom's general manager corporate finance, Mr R. Noorma Raja Othman. He said: "There will not be an impact this year from competition because of rationalisation in the industry."

Southcorp blames higher interest charges for fall

By Nikki Tait in Sydney

Southcorp, the former SA Brewery group which takes in packaging, appliance manufacturing and wine interests, yesterday announced a 14.2 per cent drop in after-tax profits to the six months to end-December, to A\$52.4m (US\$38.8m). In the same period a year ago it made A\$61m.

The company said sales increased from A\$1.17bn to A\$1.32bn, while operating profit before tax and abnormal items was 11.2 per cent lower, at A\$82.1m. The downturn was blamed partly on higher interest

charges. These almost doubled to A\$30.1m as Southcorp acquired Hoover Australia from Maytag of the US and also the Saenger PBT plastic bottle operations.

On a divisional basis, Southcorp said that pre-interest earnings from the appliance business were down 52.6 per cent to A\$14.6m. The result was below expectations, and the company said sales volumes had been hit by the downturn in Australia's housing market.

The US water heater group, meanwhile, remained in the red, but with losses reduced, and Southcorp said it was hopeful of a profitable June

quarter. On the packaging front, pre-interest profits rose 11.2 per cent, in line with expectations.

Rural sector demand rose, although a cool summer affected sales to the beverage producers.

The wine division remained the most buoyant part of the business, with pre-interest earnings rising almost 25 per cent to A\$47.6m. In the UK, sales were up 20 per cent, and in the US, by 75 per cent. The company said it was looking for an international wine acquisition before the end of the year.

The group's shares ended 4 cents lower at A\$3.27.

NZ published up 25% at nine months

New Zealand publisher Will and Horton, which yesterday announced nine-month after-tax profits of NZ\$33.4 (US\$24m), said it had bought all sectors of the media. Reports from Wellington.

The company said the represented a 25 per cent increase in earnings before interest and tax.

"Notwithstanding the difficult conditions... the NZ Herald traded strongly with total advertising volume 5.7 per cent ahead of last year's corresponding period and revenue 11.7 per cent ahead," son and Horton said.

The demand for colour advertising had been strong and extra colour and insert facilities would be installed during the current year.

Wilson and Horton said publishing market remained competitive, but its two weekly magazines had produced satisfactory profit results.

Last month it announced that Mr Phillip Tate, former Avis finance director for Australasia, was joining the publisher as chief financial officer.

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INTERNATIONAL COMPANIES AND FINANCE

WR Grace snubs Hercules merger approach

By Tony Jackson in New York

Shares in W.R. Grace, the embattled US chemicals company, jumped 11 per cent yesterday on news that it had rejected a merger approach from Hercules, a fellow US specialty chemicals producer. The rise of 7% a share to \$76.50 valued Grace at \$7.4bn.

Mr Thomas Gossage, chairman of Hercules, resigned from the Grace board on Monday, saying he had put a merger proposal to Grace's chairman, Mr Albert Costello, after being prompted by several large shareholders in both companies. Grace said its directors had voted against the offer. Mr

Costello said "it is not the right time and Hercules is not the right company".

Hercules would not comment on market speculation that it might launch a hostile bid, beyond saying it was considering various options. Its market value of \$6.9bn is roughly the same as Grace's, and it has little debt after a recent series of disposals.

Hercules said its offer was not intended to block Grace's agreed merger of its medical division with Fresenius of Germany, announced a month ago. That deal also drew opposition, in the form of a rival \$3.8bn offer for the division from US healthcare group Baxter International, since withdrawn.

In a letter to Mr Costello, Mr Gossage said now that Grace was about to become a pure chemical company, a merger could provide "tremendous opportunities". Mr Costello denied there were synergies, saying: "If there were strategic overlaps, we would not have put Tom Gossage on the board in the first place."

Last year, Hercules had operating profits of \$368m on sales of \$2.4bn. Grace's chemicals business - excluding healthcare - had operating profits of \$387m on sales of \$3.7bn. Grace's products range from plastic packaging to catalysts and sealants. Hercules makes chemicals for such industries as

paper, food, fibres and electronics.

The Hercules approach is the latest in a series of corporate upheavals at Grace, which has been in turmoil since the ouster a year ago of its chief executive officer, Mr J.P. Bolduc. This led to a shareholder revolt, the resignation of most of the board and the appointment of Mr Costello, a former head of the US chemicals company American Cyanamid.

Wall Street analysts suggested yesterday that a number of international chemicals groups besides Hercules could be interested in buying Grace, which is one of the biggest specialty chemicals manufacturers in the world.

Cemex plans big acquisition in Asia

By Daniel Dombey in Mexico City

Cemex, the Mexican company which is the fourth-largest cement concern in the world, plans a big acquisition in Asia within the next two years, according to Mr Gustavo Caballero, the company's chief financial officer.

Cemex already operates in Spain, Venezuela and the US, and saw improved operating margins in all three countries in 1995. According to results announced last week, 63 per cent of sales came from outside Mexico, allowing the company to increase cash flow 14 per cent in peso terms to 6.3bn pesos (\$822m) despite the Mexican recession.

"Most of our peers [in the cement industry] work in mature markets. We are rather the opposite," Mr Caballero said. Cemex hoped to increase its presence in emerging markets, he added, to balance the higher volatility of such countries. "Asia would be a good balance for our existing operations."

Cemex already has a sales presence in Asia, and has had an office in the region for some years. Sales in Asia made up 48 per cent of Cemex's Mexico operations' exports of \$35m pesos in 1995.

"Cemex always starts exporting cement, then it opens distribution terminals and finally it makes an acquisition or starts an association," said Mr Roberto Carrillo, Latin American cement strategist at ING Barings in Mexico City.

Mr Caballero said a further acquisition could be financed by securitising a revenue stream or with a part-equity purchase. Though debt covenants prevent Cemex going beyond 55 per cent leverage, Mr Caballero said that the level of 51.5 per cent reported for the end of 1995 left some room for manoeuvre.

"Our debt situation was very good before the Mexican crisis," he said. "But once that took place, even though we are still sound, we are now near the limit, not to meet obligations, but to grow."

AMERICAS NEWS DIGEST

Auction revival boosts Sotheby's

Sotheby's Holdings, the auctioneer, financial services and real estate group, announced a continued recovery in revenues and earnings in 1995. It said auction sales were \$1.67bn, the highest since 1990, and the fourth-best in the group's history. Revenues for the year rose 20 per cent, from \$360m to \$433m, and net income by 61 per cent, from \$20.2m to \$32.6m. Earnings per share increased from 36 cents to 58 cents.

In the fourth quarter, which yielded the bulk of the group's profits, net income rose from \$17.8m to \$27.5m, and earnings per share from 31 cents to 48 cents. The rise in auction sales was led by a near doubling in sales of impressionist and modern art - to \$176m - and a 38 per cent gain in sales of jewellery to \$70m. Three large sales of private collections contributed \$174m.

Revenues from auctions fell as a percentage of auction sales, from 17.6 to 17.1 per cent over the year. Sotheby's said this reflected a change in mix to higher average lot values, and the competitive pricing pressures in the market.

The new schedule of seller's commissions, announced last September, has yet to have a significant effect. Analysts said this should begin to have an impact in the first half of the current year. However, they said the lack of large private collection sales could make comparisons with last year difficult. Sotheby's is due to auction \$5m worth of art and objects owned by Mrs Jacqueline Kennedy Onassis in April.

Maggie Urry, New York

Tortilla switch lifts Maseca

Grupo Industrial Maseca, the food company which dominates Mexico's cornflour market, announced a 5.3 per cent rise in 1995 sales to 3.4bn pesos (\$449m). Volumes were up 17 per cent on the year before. The company's strong cash position of 935m pesos at the end of 1995 helped it mark up a 34 per cent increase in net profits to 466m pesos for the year.

Maseca has benefited from the country's continuing switch to tortillas made from cornflour rather than ground maize. Maseca claims 70 per cent of the cornflour market, which in turn accounts for 44 per cent of all tortillas.

"Tortillas are far more important than bread in Europe or rice in Asia," said Mr Javier Velez, head of corporate finance. "The demand does not fluctuate with the economic situation." Despite a fall in real prices, operating profits increased 23 per cent to 557m pesos.

The company said it had reduced expenditure on advertising and cut administrative costs, while the opening of three new plants and modernisation of Mexico City operations helped reduce freight expenses.

Daniel Dombey, Mexico City

Operating profit falls at ICA

Empresas ICA, Mexico's largest construction company, reported a fall in operating income to 246m pesos (\$32.5m) for the fourth quarter last year, compared with 454m pesos for the same period a year before. Net loss for the quarter, in which interest rates rose, stood at 130m pesos compared with a loss of 62m pesos in the quarter last year.

Daniel Dombey

Loblaw plans stock split in May

Loblaw, Canada's biggest food distributor, which is owned by the Weston family, plans a three-for-one stock split in mid-May, bringing total shares outstanding to 240m and broadening the market in the company's shares. Loblaw is also raising C\$300m (US\$218m) with a medium term note issue to fund modernisation and expansion. The market values Loblaw at nearly C\$3bn. The company earned C\$146.7m in 1995, 17 per cent up on 1994.

Robert Gibbons, Montreal

Corel confident of a perfect repackaging

Senior executives of Corel, the Canadian software maker, were at WordPerfect's offices in Orem, Utah, last Friday for a burst of corporate cheerleading to welcome the word-processing software group into the Corel fold.

Corel, which bought WordPerfect in January from Novell, the networking software specialist, is eager to show WordPerfect's 600 employees, as well as sceptical outsiders, that the deal has the makings of an exciting and rewarding partnership.

Over the next few weeks, each WordPerfect employee will be linked to head office in Ottawa by Corel's new video communication system, which includes a small camera mounted on every PC monitor. Nor is Corel wasting any time applying its vaunted marketing skills. A revamped and repackaged Corel WordPerfect is to be launched within the next few weeks. "It's going to be supported by megabucks of advertising," promises Mr Michael Cowpland, Corel's founder and chief executive. More ambitious co-operative ventures are in store later in the year.

Corel's efforts underscore the high stakes riding on its new acquisition, both for WordPerfect and itself. The Canadian company needs WordPerfect to help broaden its base. Its flagship product, the popular CorelDraw graphics software, made up 74 per cent of sales, totalling US\$196.4m, in the fiscal year to November 30.

Corel has left few stones unturned, in perfecting and marketing CorelDraw in the



Words and pictures: Corel is aiming to broaden its product base

six years since it was launched. "The only things left for them were acquisitions or new products," says Mr Tom Astle, analyst at Midland Walwyn in Toronto.

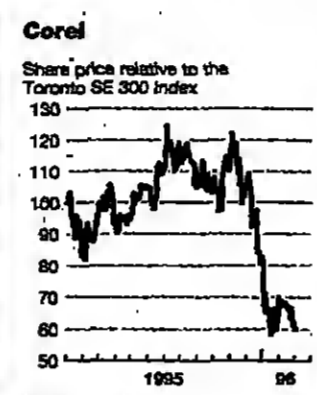
For WordPerfect, the arrival of a new parent offers hope of rejuvenation. WordPerfect remains one of the most popular word-processing programs, but has steadily lost ground in recent years, notably to Microsoft Word. Its business version, PerfectOffice, has market share of only about 5 per cent, versus more than 90 per cent for Microsoft Office.

Novell bought WordPerfect two years ago for \$1.4bn, but received only \$116m - all in shares - from Corel. This made it Corel's biggest shareholder, with a 16 per cent fully-diluted stake. According to Mr Cowpland, Novell really wasn't promoting WordPerfect strongly in the past 18 months. Its Windows 95 version, known as WordPerfect 7, is due for launch in April, six months behind the comparable Microsoft Word product.

Corel appears to be better placed than Novell to revive WordPerfect. "There's a much better culture fit with the folks at Corel than there ever was at Novell," says one WordPerfect employee. While Novell's customers mainly comprise specialist information technology specialists and engineers, Corel is driven by the pizzazz of the retail market.

Mr Cowpland, a fast-talking Englishman with a collegiate management style, first came to prominence the 1970s as co-founder of Mitel, the telephone equipment maker. His lifestyle is epitomised by a convertible Porsche with the registration COREL.

Advertising outlay made up 28 per cent of Corel's 1995 sales. While revenues rose 19.5 per cent, advertising spend shot up 72.8 per cent to \$51.1m. Mr Cowpland says this year's advertising budget will top \$100m. The company spends heavily on sports sponsorship. Concern about Corel's prospects



Source: FT Extel

has grown recently. Disappointing shipments of a new CorelDraw version designed for Windows 95 pushed the company to a \$1m loss in the final quarter of fiscal 1995, compared with earnings of \$11.2m a year earlier. The WordPerfect purchase has failed to revive Corel's share price, which has slipped to C\$14.25 on the Toronto stock exchange, from last year's peak of C\$26.62.

WordPerfect and PerfectOffice sales were US\$400m in Novell's latest fiscal year, ended October 31. But first-quarter revenues this year were only about \$50m. "If they get \$150m from WordPerfect this year, they'll be lucky," says one analyst, who has told clients to steer clear of Corel.

Stronger results are likely over the next few months. But analysts caution against reading too much into the performance. Earnings are likely to be buoyed as the new versions of WordPerfect and PerfectOffice are pushed into the distribution pipeline.

Concerns about WordPerfect include the high proportion of users who still use the old Dos operating system and are not expected to upgrade to Windows or Windows 95 soon. They also worry that Microsoft might try to outflank Corel by bringing out a graphics product to take on CorelDraw.

Mr Cowpland dismisses these fears. He predicts that, with proper marketing, software users will better appreciate WordPerfect's superior features - for example, the one-tenth point increments in its font sizes, versus Microsoft's one-half point increments.

The new Corel WordPerfect will be more than a word processing programme. Starting with WordPerfect 7, extras are likely to be added to the traditional word processing package, such as a Netscape Internet browser, and various multimedia and graphics products. PerfectOffice may include Novell's electronic publishing and workgroup-sharing software.

As for the danger of Microsoft entering the graphics market, Mr Cowpland says that "they'd have to buy a product that we've already demolished in the market place". In any case, he expects any foray by Microsoft on to Corel's turf to be delayed at least six months by US antitrust scrutiny.

Even sceptical outsiders temper their concerns with respect for Corel's marketing flair and youthful energy. "There is great leverage in the WordPerfect deal," Mr Astle says. "They could make us all look silly."

Bernard Simon

Philips Electronics N.V.

(The Netherlands)

Notice convening the ORDINARY GENERAL MEETING OF SHAREHOLDERS to be held on Monday, March 25, 1996, at 2 p.m., in the BEURS-GEBOUW EINDHOVEN, LARDINOISSSTRAAT 8 (at the north side of the central railway station), EINDHOVEN.

The items on the agenda are as follows:

1. Opening.
2. Financial statements and Annual Report 1995.
 - Report on the activities of the Philips group in 1995.
 - Report of the Supervisory Board on the financial statements for 1995.
 - Adoption of the 1995 financial statements.
 - Adoption of dividend proposal.
3. Composition of the Board of Management.
4. Composition of the Supervisory Board.
5. Designation of the Board of Management as the body authorised for a period of 18 months to issue shares or rights to shares and to restrict or exclude the pre-emption right.
6. Authorisation of the Board of Management for a period of 18 months to acquire shares in the Company.
7. Any other business.
8. Closing.

The complete agenda and the Annual Report Philips 1995 have been deposited for inspection and are available free of charge at the office of the Company (Philips Finance Securities, Building VOP, P.O. Box 218, 5600 MD Eindhoven), and at the head offices of the banks listed below.

Insofar as this is laid down in the Articles of Association, the proposals for nominations, together with information relating to the persons proposed, have been deposited for inspection and are available free of charge at the office of the Company (Philips Finance Securities) and at ABN AMRO Bank N.V., Herengracht 595, in Amsterdam.

Holders of shares Philips Electronics to bearer (in CF form) listed on the London Stock Exchange who wish to attend the meeting, either in person or by proxy, should order their own depositary bank not later than 12.00 hours at noon on March 21, 1996 to block such certificates in exchange for a receipt from their bank that will entitle the holder to admittance to the meeting. Depositary agents must notify the Company not later than March 21, 1996.

Banks appointed as coordinating agents between depositaries and the Company:

In the United Kingdom:
Hill Samuel Bank Limited, 10 Fleet Place, London.

In the Netherlands:
ABN AMRO Bank N.V., Herengracht 595, Amsterdam.

Eindhoven, March 6, 1996. The Board of Management

Rectification

ABN-AMRO

ABN AMRO BANK N.V.

US Dollars 150,000,000 Subordinated Floating Rate Notes 1992 due 2002

In accordance with the terms and conditions of the Notes, notice is hereby given that for the interest period from February 26, 1996 to August 27, 1996 the Rate of Interest has been fixed at 5.25 per cent, and that the interest payable on the relevant interest Payment Date, August 27, 1996 against Coupon No. 8 in respect of US\$ 5,000 nominal of the Notes will be US\$ 123.44 and in respect of US\$ 100,000 nominal of the Notes will be US\$ 2,669.75.

ABN AMRO BANK N.V.

MORTGAGE FUNDING CORPORATION NO. 6 PLC

Class A1 Subordinated Floating Rate Notes due November 2002 US\$50,000,000

Class A2 Mortgage Backed Floating Rate Notes due November 2002 US\$50,000,000

Class B Mortgage Backed Floating Rate Notes due November 2002 US\$50,000,000

In accordance with the provisions of the prospectus, the interest payable on the Notes issued on 29 February 1996 to 31 May 1996, the interest rate will be 5.25% per annum. The interest payable on the Class A2 Notes and 4.9125% per annum for the period from 31 May 1996 to 31 August 1996. The interest payable on the Class B Notes will be 4.1% per annum for the period from 31 May 1996 to 31 August 1996 and 5.1% thereafter.

Agent Bank
Midland Bank plc

Correction Notice

BankAmerica Corporation

US \$500,000,000 Floating Rate Notes Due February 1997

For the period from February 26, 1996 to May 28, 1996 the Notes will carry an interest rate of 5.6575% per annum with an interest amount of US \$726,744 per US \$50,000 principal amount of Notes payable on May 28, 1996.

Union Bank of Switzerland
London Branch Agent Bank

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What's cooking in your portfolio?

Ask most banks how you should invest to preserve your assets and you'll likely hear that a balanced diet is best for your long-term financial health.

Good advice. But sound diversification requires much more than a little of this, more of that, and a taste of something else. That's where the personalized private banking philosophy of Bank Julius Baer can help.

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COMPANY NEWS: UK

Emap close to £145m French magazines deal

By Christopher Price

Emap, the publishing and media group, is close to purchasing three leading French consumer magazines from Compagnie Luxembourgeoise de Telediffusion for £145m (\$223.3m).

Sante, a women's monthly magazine with a circulation of 700,000, and Tele Star, a television listing magazine with weekly sales of 2m.

Emap is understood to have beaten off stiff competition from Springer Verlag of Germany to secure the deal which will increase by more than

a half Emap's revenues from its French operations and raise its market share of the country's consumer magazine market from 11 per cent to 15.

Emap entered France in 1990 but made its biggest move in June 1994, spending FF770m in the purchase of Editions Mondiales, a Paris-based publisher. Three other smaller acquisitions, totalling FF205m, accompanied that deal, including France's biggest selling motoring magazine, L'Auto Journal.

It is thought that the UK group will pay for its latest purchase from existing resources. Borrowings stood at £234m at the interim stage in November, a rise of 74 per cent over the previous period. With the group's

cash flow taken into account, analysts are forecasting borrowings of £336m should the deal go through, against shareholders' funds of £152m in the year to March 31, 1995.

As well as Tele Star and Top Sante, the latest acquisition would give Emap control of Tele Star Jeux, a puzzle magazine which has a monthly circulation of 215,000.

More wagons for Eurotunnel

Eurotunnel, operator of Channel tunnel car and freight "shuttle" services, yesterday placed an order for 73 additional freight shuttle wagons costing FF106m from the French manufacturer, Arbel, for delivery in March-April 1996, writes Charles Batchelor.

It also took out an option for a further 144 wagons for delivery in January and December 1999 and announced plans to order up to nine more locomotives and six more club cars for carrying truck drivers.

The additional shuttle wagons will boost Eurotunnel's current capacity of 3,900 trucks a day by 7 per cent. It said it had sufficient capacity to meet foreseeable demand although traffic figures for February published yesterday showed further strong growth.

The new wagons will be of a simpler design than the original fleet, built by Breda of Italy, and will cost just one-third of the price. Arbel makes automotive parts and freight railway rolling stock. The wagons will be built at Arbel Favret Rail at its factory in Douai, northern France.

M&S makes Canadian sale

By Roderick Oram, Consumer Industries Editor

Marks and Spencer is to sell its chain of 88 D'Alaird's stores in Canada, marking a further attempt by the UK retailer to find a profitable strategy in the country.

The purchaser is Comark, one of the largest specialty retailers in Canada with more than 500 stores under names such as Bootlegger, Irene Hill and Ricki's. Comark is owned by the publicly-traded Brenninkmeyer family.

Disposal of the D'Alaird's chain, acquired in the 1970s, will cost M&S about £15m, the group said, of which £10m will be goodwill previously written off to reserves.

M&S has spent more than 20 years trying to make various formats work in Canada, the first foreign country it tried to break into. Its initial attempt to rationalise the operations came in 1992 when it sold the Peoples Stores chain.

"It would have been difficult to get it more wrong," Sir Richard Greenbury, M&S's chairman, said of Canada last year when he was unveiling a further expansion of its successful Asian business.

The formula that works best for M&S is to concentrate on stores with the same name and essentially the same lay-out and range of goods with which it has flourished in the UK. This will now be the sole thrust of its Canadian operations.

M&S encountered similar problems in the US as Canada, where it spent heavily to buy the Brooks Brothers clothing chain in 1987 and to rebuild it before finally returning it to profit.

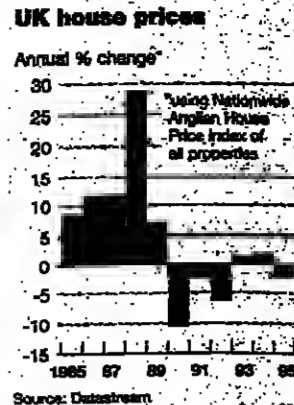
Its purchase of the Kings supermarket chain in New Jersey was successful more quickly.

Continental Europe appears to be one of the overseas areas with the highest interest to M&S. It recently secured the lease on its first German store and plans others in the Ruhr.

The real test in each country, however, is M&S's ability to generate sufficient momentum to switch from high-priced niche retailing to the mass market.

LEX COMMENT UK housing

The UK's Labour party may have suddenly become the self-proclaimed "party of private housing", but Mr Tony Blair, its leader, seems short of new ideas to demonstrate this commitment. He made a blistering attack on the government's cuts in mortgage tax relief for homeowners yesterday, without suggesting he would reverse them.



Source: Datastream

Certainly, the draft code of lending practice by the Council of Mortgage Lenders does not go far enough - it does not provide automatic disclosure of commission or penalties for bad advice.

At least Mr Blair's statements will provide some comfort for the two-thirds of UK families who own their own homes. But property owners would gain greater benefit if the party regained its tag as the party of inflation, thereby fuelling a recovery in the housing market.

After all, lower interest rates and tax cuts should help raise housing prices by some 2 per cent this year, but that hardly scratches the surface of recent declines.

DIGEST

BET chief could receive £5m

Mr John Clark, chief executive of BET, will receive more than £5m (\$7.7m) if the £1.9bn hostile bid for the business services group by Rentokil is successful.

The figure, which includes a payment of about £3m from a controversial medium-term incentive scheme, provoked outrage from some BET institutional investors.

One institution described the pay-off, one of the biggest to a director in UK corporate history, as a "disgrace". The shareholders were angry that the money in the scheme is paid to directors if there is a successful takeover regardless of whether the relevant performance criteria have been met.

According to BET's 1995 annual report, a sum of £3.5m has been set aside for the executive directors who qualify for the scheme - Mr Clark and Mr Keith Payne, finance director. It is understood that Mr Clark qualifies for about £3m of that.

Mr Clark, who was paid a total of £1.1m last year including bonuses and pension payments, also stands to make a profit of £1.07m on his share options at the 200% Rentokil cash and share offer. He is also understood to be on a three-year rolling contract with the group, with an annual salary of about £480,000.

The incentive scheme was introduced in 1993 and covers about 50 senior managers at the group.

Some institutional shareholders supported Mr Clark. One said: "You have to be flexible. The company was nearly shut when he took over and not many people were queuing up to do the job."

Geoff Dyer and William Lewis

Welsh Water A\$30m investment

Welsh Water has made its first significant infrastructure investment overseas, paying A\$30m for a 6.6 per cent stake in an A\$1.75bn private road scheme in Melbourne, Australia.

The project is a 20km eight-lane highway through Melbourne linking four of the city's arterial routes in order to alleviate traffic congestion. The scheme was identified in 1990 by Acer, Welsh Water's engineering and environmental business, which will do design work for the project.

The toll highway will be run by Transroute, the French road operator. Welsh Water and Transroute are also in a consortium with John Laing and Tarmac to tender for private finance road projects in the UK.

Welsh Water said that investors in the Melbourne project would start getting a return soon after the start of the construction phase.

Other investors include the Australian Industrial Development Corporation and Hastings Funds Management, which backed this week's successful £1.2bn bid by PowerGen to buy the Yallourn power station in Victoria. David Wighton

S&P sees cuts in life offices

Several thousand jobs within the UK life assurance sector will go over the coming months, as companies continue to cut spending on staff, property and computer systems, according to Standard & Poor's, the credit rating agency.

In a review of the sector, S&P said it expected life companies to make further significant cuts in their costs this year as they reduced their charges in order to gain market share.

It expects "further substantial reductions" in the number of people selling life assurance.

The review follows moves in which S&P downgraded its ratings for companies including Clerical Medical, Scottish Provident and Norwich Union.

While it is optimistic about the sector's prospects in the longer-term, it expects new business levels to remain subdued both this year and next.

Of the 31 life offices for which it gives ratings, S&P rates one - Guardian Assurance - as having "weak" financial strength, and four - Crown Life, Friends' Provident, Royal Life, and Sun Alliance - as having "adequate" financial strength. The other 26 have higher ratings.

Despite the uncertain forecast for the sector, S&P believes the pace at which life companies withdraw from the overcrowded UK market will be slower than some have suggested.

Alison Smith

Gehe's offer document today

Gehe, the German drugs wholesaler that took over AAH last year, today publishes the offer document in its £650m bid for Lloyds Chemists, the pharmacy chain.

A £81m bid for Lloyds from Unichem, the UK drugs wholesaler, lapsed last week when it was referred to the Monopolies and Mergers Commission.

The UK authorities have asked the European Commission to allow them to examine Gehe's offer of 600p a share cash, which would also lapse if referred to the MMC. The Reuter news agency yesterday quoted an official saying that there seemed to be a good case for referral, and adding that a preliminary decision would probably be taken later this week.

Shares in Lloyds put on 5p to 483p yesterday. Both Unichem and Gehe already control about 30 per cent of the UK drugs wholesale market, which would increase to about 34 per cent on the acquisition of Lloyds.

There could also be concerns over vertical integration of wholesaling with a powerful retail presence. Unichem owns some 400 pharmacies and Gehe about 300 after its takeover of AAH. Combined with Lloyds's 938 pharmacies, either one would create a substantial retail chain.

The MMC has until June 28 to make its report on the Unichem bid. David Blackwell

RESULTS

Table with columns: Company, Yr to Dec 31, Turnover (£m), Profit (£m), EPS (p), Current dividend (p), Date of payment, Dividends corresponding dividend, Total for year, Total last year.

Table with columns: Investment Trusts, Yr to Dec 31, Turnover (£m), Profit (£m), EPS (p), Current dividend (p), Date of payment, Dividends corresponding dividend, Total for year, Total last year.

Earnings shown basic. Dividends shown net except Xpress. Figures in brackets are for corresponding period. *After exceptional charge. *After exceptional credit. †On increased capital. ‡Inch currency. *Comparatives restated. †Gross written premiums. S&P stock. ‡Reflects benefit from tax credit. †Ain stock. *Partly paid as foreign income dividend. †US currency.



De Beers Consolidated Mines Limited (Incorporated in the Republic of South Africa) (IC 00001 Registration No. 114997/0/0)

De Beers



De Beers Centenary AG (Incorporated under the law of Switzerland)

EXTRACTS FROM THE AUDITED RESULTS FOR THE YEAR ENDED 31 DECEMBER 1995

Attributable to the De Beers/Centenary linked units

- ◆ Attributable earnings up 11% in Dollars (14% in Rand)
◆ Equity earnings up 18% in Dollars (21% in Rand)
◆ Dividends up 10% in Dollars (13% in Rand)

PRO FORMA COMBINED INCOME STATEMENT

Table with columns: Rand millions, 1994, 1995, US\$ millions, 1995, 1994. Rows include Diamond account, Investment income, Interest income, Net income before taxation, Taxation, Attributable earnings, Earnings per linked unit, Dividends.

PRO FORMA COMBINED BALANCE SHEET

Table with columns: Rand millions, 1994, 1995, US\$ millions, 1995, 1994. Rows include Linked unit holders' interests, Preferred and outside shareholders' interests, Long- and medium-term liabilities, Represented by: Fixed assets, Investments, Diamond stocks, Stores and materials, Net current assets, Market value/directors' valuation of all investments including trade investments, Net asset value, Net asset value per De Beers/Centenary linked unit, US Dollar/Rand year end exchange rates.

DIVIDENDS

Both the De Beers Consolidated final dividend (No. 1521) of 132 SA cents per linked deferred share and the Centenary Depository dividend distribution (No. 121) of 31.2 US cents per depository receipt have been declared payable on Wednesday, 22 May 1996 to linked unit holders registered at the close of business on Friday, 29 March 1996.

COMMENT

Sales of rough diamonds by the Central Selling Organisation (CSO) in 1995 at US\$4 531 million (R16 995 million) were 7 per cent higher than the previous year's sales at US\$4 250 million (R15 007 million). Sales in the second half of the year at US\$1 941 million were 19 per cent higher than for the same period in 1994.

Worldwide retail sales of diamond jewellery are estimated to have increased in 1995 by 5 per cent.

Mining companies in the De Beers group have historically used the "last in first out" method to value diamond stocks. In compliance with a revised statement of generally accepted accounting practice the "first in first out" method has now been adopted. The effect of this has been to increase diamond stocks and attributable earnings in the current year by US\$19 million or R65 million and in the prior year, which has been restated, by US\$4 million or R15 million.

Combined long- and medium-term liabilities at the end of 1995 were US\$1 106 million, US\$182 million lower than 1994, while net current assets decreased by US\$216 million to US\$46 million, showing an overall decrease of US\$34 million.

The rough diamond market has begun 1996 in a confident mood. The price changes in 1995, the absence of outside rough, the retail market situation and the recently announced arrangements between the CSO and the Russian government have all contributed to a continuing improvement in sentiment.

Copies of the provisional annual financial statements and dividend notices will be posted to linked unit holders on or about 7 March 1996 and will also be available from the following offices:

De Beers Consolidated Mines Limited, 36 Stockdale Street, Kimberley, South Africa

De Beers Centenary AG, Langensandstrasse 27, CH-6000 Lucerne 14, Switzerland

Anglo American Corporation of South Africa Limited, 19 Charterhouse Street, London EC1N 6QP England

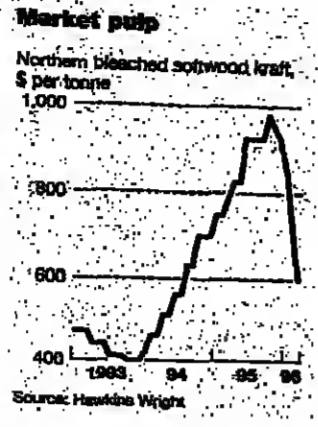
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COMMODITIES AND AGRICULTURE

North American wood pulp mills slash prices

By Bernard Simon, in Toronto

North American wood pulp mills have slashed prices amid a wave of reclamation among producers...



Market pulp Northern bleached softwood kraft, \$ per tonne, 1,000

mills' cash production costs. Mr David Pinnell, analyst at Resource Information Systems, a US consultancy...

Mining industry turns its back on fund raising

Kenneth Gooding reviews last year's spate of mergers, acquisitions and share buy-backs

Mining companies switched their attention last year from raising new funds and turned to mergers, acquisitions and buying back their shares.



Last year J. Burgess Winter (left), president and CEO of Magma, saw his company acquired by BHP, headed by John Prescott

Sweden's sale of its 24 per cent shareholding in the Falconbridge nickel group to institutional investors for \$38m.

tina: Goldfields paid \$180m for Pancontinental, another Australian company, and Homestake Mining of the US bought the minority interest in its Australian subsidiary for \$162m.

De Beers calms Australian row

By Kenneth Gooding, Mining Correspondent

De Beers yesterday indicated that it had gone a long way towards patching up its dispute with the Australians...

The news comes only days after the CSO reached agreement with Russia, another big producer that recently seemed intent on quitting the cartel.

Yesterday, however, Mr Ralfie said that negotiations for a new contract with the Australians started last week in South Africa...

Gold project wins approval

By Kenneth Gooding

After an arduous permitting process lasting 41 months and some acrimonious litigation, the US\$319m Pipeline project in Crescent Valley, Nevada...

next year at an annual rate of 310,000 troy ounces. Reserves of 4.3m ounces will last 12 years.

Grain futures continue to slide

By Deborah Hargreaves

Grain futures at the Chicago Board of Trade continued to slip yesterday in fast trading after Monday's sell-off...

futures pushed other agricultural products down, with March wheat falling 7/8 cent to \$5.05 a bushel at mid session.

beans, which Mr Gidel said looked most vulnerable in the short term. "We could be looking at a lacklustre scenario for soybeans in the next few weeks, but there is still a lot of uncertainty about the crop and I'm not saying these markets have seen their peak," he said.

COMMODITIES PRICES

Table of Base Metals prices including LONDON METAL EXCHANGE, ALUMINIUM, COPPER, and NICKEL.

Table of Precious Metals prices including GOLD COMEX, SILVER COMEX, and PLATINUM NYMEX.

Table of Grains and Oil Seeds prices including WHEAT LCE, MAIZE CBOT, and SOYBEANS CBOT.

Table of Softs prices including COCOA LCE, COFFEE LCE, and SUGAR 11°.

Table of Meat and Livestock prices including LIVE CATTLE CME, LIVE HOGS CME, and PORK BELLIES CME.

Table of LONDON TRADED OPTIONS prices including ALUMINIUM, COPPER, and GOLD.

Table of LONDON SPOT MARKETS prices including CRUDE OIL FOB, BRENT CRUDE IPE, and GOLD.

Table of COMEX FUTURE CONTRACTS prices including GOLD, SILVER, and COPPER.

Table of Precious Metals prices including LONDON BULLION MARKET and GOLD/PLATINUM.

Table of UNLEADED GASOLINE prices including NYMEX and CRUDE OIL.

Table of FUTURE DATA prices including WHEAT, MAIZE, and SOYBEANS.

Table of VOLUME DATA prices including COMEX, NYCE, and CME.

Table of INDICES prices including REUTERS, COMEX, and NYCE.

Table of OTHER prices including GOLD, SILVER, and COPPER.

Table of METALS OFFERINGS prices including ALUMINIUM, COPPER, and GOLD.

CROSSWORD puzzle with 30 clues and a solution grid.

INTERNATIONAL CAPITAL MARKETS

Traders torn between conflicting signals

By Samer Iskander in London and Lisa Branstetter in New York

Government bond markets lacked inspiration yesterday, as traders were torn between conflicting signals from both sides of the Atlantic. With US economic activity appearing stronger than previously believed, a rate cut by the Federal Reserve seems increasingly unlikely.

Whether the Fed would lower rates has been in flux, leading to volatile trading and sharp swings in the shape of the yield curve. Yesterday, the yield curve flattened to 112 basis points from 116 points late on Monday.

GOVERNMENT BONDS

UK government bonds were driven by international markets yesterday, as volumes and volatility remained subdued, while traders waited for a widely expected cut in UK official interest rates.

However, gilt underperformance the US and major continental European markets. Lifes's 10-year gilt futures closed at 107 1/2, down 1/4. Ten-year spreads widened by 4 basis points to 192 points over Treasuries, and by 3 basis points to 163 points over bunds.

Mr Don Smith, UK economist at HSBC, believes this underperformance is "in part redressing the outperformance of the last few weeks." He is convinced there will be a rate cut, but warns of "more downside risk than upside potential", since he considers the next easing to be largely reflected in current prices.

French bunds were relatively well supported in the unstable international environment. The yield curve steepened slightly as short rates drifted lower and longer maturities remained almost unchanged.

Matif's March 10-year bond future closed at 121.86, down 0.02, and the March three-month Fibor contract settled at 95.67, up 0.05. In the cash market, the 10-year yield was up one basis point at 6.56 per cent and the 10-year spread over German bunds tightened by 4 basis points to 94 points.

Kvaerner raises £450m bridge loan for Trafalgar bid

By Antonia Sharpe

Kvaerner, the Norwegian engineering and shipbuilding group which has made an agreed £200m takeover bid for Trafalgar House of the UK, has become the latest company to raise acquisition financing in the international syndicated loans market.

SYNDICATED LOANS

Four banks - Chemical, Den Norske Bank, Enskilda, and SBC Warburg (which advised Kvaerner on the takeover) - are providing Kvaerner with a two-year "bridge" loan of £450m. Details will be disclosed in the offer document, which is likely to be published early next week.

Even though the bid is not directly to Kvaerner, rather than a special-purpose vehicle - as was the case in some of the takeovers of UK regional electricity companies - the interest margin on the loan is expected to be well in excess of that on a similar-sized facility Kvaerner took out last year.

The old loan pays 25 basis points over London interbank offered rate. On the new loan, the leveraged nature of the Trafalgar House purchase, the asset disposals involved and the short life of the loan suggest Kvaerner will have had to agree to an interest margin in the high 30s.

The arrangers of the loan are expected to go straight to general syndication, because a sub-underwriting stage is not necessary due to its size. News that the proposed merger between MAI, the UK television and financial services group, and United News & Media, owner of Express Newspapers, will not be referred to the Monopolies and Mergers Commission means the £535m and £255m three-year facilities arranged by Chemical and Lloyds for the new group can proceed. The two facilities, which carry margins of 27.5 basis points over Libor, are likely to be underwritten in the next few days.

Although acquisition financing has dominated the syndicated loans market in recent months, there has been a steady flow of corporate lending, mainly for refinancing. Bank Xerox, the office equipment supplier, yesterday said it had asked Banque Nationale de Paris, NatWest Capital Markets and Union Bank of Switzerland to arrange a £400m five-year revolving credit facility. The facility fee and margin over Libor have been set at 7.5 basis points each, and there is a utilisation fee of 2.5 points.

The other notable corporate facility in the past week was a DM1bn seven-year revolving credit for Preussag, the German metals and engineering group. Like Rank Xerox, the facility fee and the margin over Libor have been set at 7.5 basis points each, but there is a utilisation fee of 4.5 points. The arranger is WestLB and Preussag's relationship banks will be invited into the loan. Bankers said it was refreshing to see WestLB win a big loan from corporate Germany, the preserve of Deutsche Bank and J.P. Morgan in recent times.

A \$500m five-year amortising loan for Investorco, the Bahrain-based investment group, is now in general syndication. The original group of arrangers - Bankers Trust Bank, Tokyo, Chemical, Credit Suisse, NatWest, Société Générale and WestLB - has been expanded to include another nine banks.

Successful \$200m debut for Norwegian telecoms group

By Conner Middleman

Telenor, the Norwegian state-owned telecommunications company, made a successful debut yesterday with \$200m of five-year bonds.

The paper was priced to yield 24 basis points over Treasuries, 3 basis points below outstanding bonds issued by the UK's National Grid. Despite that somewhat aggressive pricing, the issue attracted strong demand from investors seeking exposure to the telecommunications sector and Norwegian risk.

"Norwegian entities are very infrequent borrowers on the eurobond market," said one dealer. Lead manager J.P. Morgan said it sold all the bonds by the time they were priced, and

NEW INTERNATIONAL BOND ISSUES

Table with columns: Amount, Coupon, Price, Maturity, Fees, Spread, Book-runner. Lists various international bond issues from US Dollars, Swiss Francs, and Australian Dollars.

Final terms, non-callable unless stated. Annual spread over relevant government bond at launch supplied by lead manager. \$ convertible, \$100m equity warrants, \$50m zero-coupon, \$100m 10-year coupon, \$100m 10-year coupon, \$100m 10-year coupon.

Yorkshire Water, the UK utility, yesterday announced that it is repurchasing its 6.75 per cent convertible bonds due 2008 at a price of 112, via James Capel and Cazenove.

Standard & Poor's has assigned a B+ rating to Brazil's Y00bn five-year samurai issue which was launched on Monday and said its outlook on Brazil's rating is positive.

WORLD BOND PRICES

Table of benchmark government bonds for Australia, Belgium, Canada, Denmark, France, Germany, Greece, Hong Kong, India, Japan, Korea, Malaysia, Mexico, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, UK Gilts, and US Treasury.

BUND FUTURES OPTIONS

Table of bund futures options including calls and puts for various maturities and prices.

FT-ACTUARIES FIXED INTEREST INDICES

Table of fixed interest indices for UK Gilts, FT Actuaries, and FT Fixed Interest Indices.

GILT EDGED ACTIVITY INDICES

Table of gilt edged activity indices for various maturities and prices.

US INTEREST RATES

Table of US interest rates for Treasury bills, notes, and bonds.

UK GILTS PRICES

Table of UK gilt prices for various maturities and prices.

FT/ISIA INTERNATIONAL BOND SERVICE

Table of international bond service listings for various countries and currencies.

CONVERTIBLE BONDS

Table of convertible bonds for various companies and currencies.

BOND FUTURES AND OPTIONS

Table of bond futures and options for France, Germany, and Japan.

Other Fixed Interest

Table of other fixed interest instruments including Eurobonds and other international bonds.

DEUTSCHE MARK STRAIGHTS

Table of Deutsche Mark straight bonds for various maturities and prices.

OTHER FIXED INTEREST

Table of other fixed interest instruments including Eurobonds and other international bonds.

FIN 100 INDEX

Table of the FIN 100 index for various companies and sectors.

FIN 100 INDEX

Table of the FIN 100 index for various companies and sectors.

FIN 100 INDEX

Table of the FIN 100 index for various companies and sectors.

FIN 100 INDEX

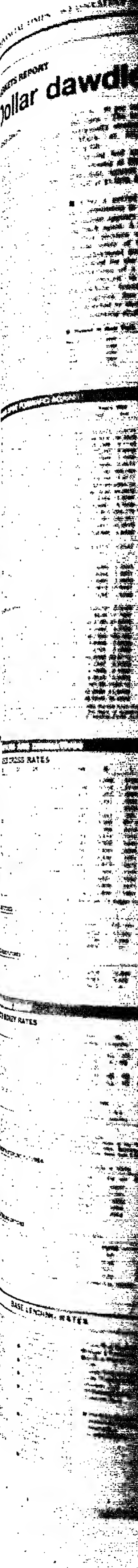
Table of the FIN 100 index for various companies and sectors.

100 stocks, 25 100-weight non-financial companies. Prospective real time-liquidity information values are calculated by HSBC Global Services.

100 stocks, 25 100-weight non-financial companies. Prospective real time-liquidity information values are calculated by HSBC Global Services.

100 stocks, 25 100-weight non-financial companies. Prospective real time-liquidity information values are calculated by HSBC Global Services.

100 stocks, 25 100-weight non-financial companies. Prospective real time-liquidity information values are calculated by HSBC Global Services.



CURRENCIES AND MONEY

MARKETS REPORT

Dollar dawdles as markets seek fresh direction

By Philip Gawth

Currency markets had an uneventful day yesterday in the absence of any fresh developments or established trends to trade off.

If anything, the D-Mark had a slightly weaker bias, but for the most part currencies ranged within their recent ranges.

The dollar finished in London at DM1.4789, from DM1.4768. Against the yen it closed at ¥106.126, from ¥106.14.

The slightly weaker D-Mark helped stabilise the peseta, despite the continued weak performance of Spanish asset markets following the indecisive weekend election result.

Elsewhere in Europe the Swedish Riksbank cut the repo

rate to 7.85 per cent, from 8.05 per cent. The krona finished marginally weaker against the D-Mark, at SKr4.63, from SKr4.625.

Sterling had an uneventful day, closing at DM2.2694, from DM2.2553. Against the dollar it closed at \$1.8378, from \$1.8322.

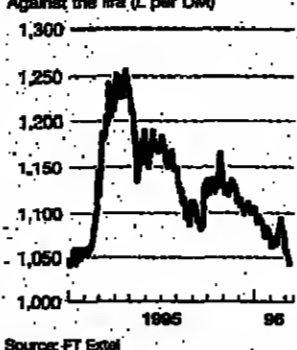
After a period of interest rate pessimism in Europe, the pendulum appears to be swinging back again. A key element of this picture will be the release today of the German unemployment data.

He predicted it would be at least another three months before the market concluded that the German interest rate cycle had reached a trough.

Mr Julian Jessop, economist at HSBC Markets in London, said it remained their view that there would be at least one more cut in interest rates. He said the most likely date for a decision would be the March 28 meeting of the Bundesbank council. History suggests the council will be 50 basis points, Mr

D-Mark

Against the lire (L per DM)



Source: FT Data

Jessop points out that 57 of the last 60 discount rate cuts, going back to 1969, have been the full half-point.

One factor that may well have prevented the D-Mark slipping further has been the inability of the dollar to sustain its recovery.

that the dollar has a better chance of moving higher against the D-Mark, which has weak economic data to contend with, than the yen, which is supported by anticipated capital flows back into Japan at the financial year-end.

They point out that the Jensen bail-out could have a bearing on capital flows: "If the government, as is now expected, accepts a share of future bank profits in lieu of a more significant up front cash contribution, this may help to mitigate some of the concerns that banks would be forced to liquidate more overseas assets to cover their share of the bail out."

The cut in the Swedish repo rate was the fifth cut this year, in which time the rate has fallen from 8.91 per cent.

The consensus view among economists is that the rate will fall to around 6.5 per cent by the end of the year, although there are some observers who

believe it could fall below 6 per cent. The Riksbank fuelled optimism with a very bullish inflation report on Monday.

Mr Malcolm Barr, economist at Chemical Bank in London, said the nervousness concerning the krona yesterday had been more to do with the road haulage strike, and fears that it might escalate, than Riksbank policy.

He said the sedate performance of the peseta, which traded only in a 34 basis point range, was indicative of the sluggish state of the markets. "It takes quite a lot of news to get the markets moving."

WORLD INTEREST RATES

Table with columns: MONEY RATES, March 5, Over night, One month, Three months, Six months, One year, Lomb. int., Dis. rate, Repo rate. Rows include Belgium, France, Germany, Ireland, Italy, Netherlands, Switzerland, US, Japan.

Table with columns: LIBOR FT London, Interbank, US Dollar, French Franc, ECU, Swiss Franc, Canadian Dollar, US Dollar, Italian Lira, Asian Sling.

Table with columns: EURO CURRENCY INTEREST RATES, Mar 5, Short term, 7 days, One month, Three months, Six months, One year.

POUND SPOT FORWARD AGAINST THE POUND

Table with columns: Mar 5, Closing mid-point, Change on day, Bid/offer spread, Day's mid high/low, One month, Three months, One year, Bank of Eng. index.

DOLLAR SPOT FORWARD AGAINST THE DOLLAR

Table with columns: Mar 5, Closing mid-point, Change on day, Bid/offer spread, Day's mid high/low, One month, Three months, One year, J.P. Morgan index.

GROSS RATES AND DERIVATIVES

Table with columns: EXCHANGE CROSS RATES, Mar 5, BFR, DFR, FFR, DM, IE, L, FI, Nkr, Es, Pta, SKr, Sfr, E, CS, \$, Yen, Ecu.

UK INTEREST RATES

Table with columns: LONDON MONEY RATES, Mar 5, Over-night, 7 days, One month, Three months, Six months, One year.

UK INTEREST RATES

Table with columns: UK clearing bank base lending rate 6 1/2 per cent from January 18, 1996.

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JAPANESE YEN FUTURES

Table with columns: Mar 5, Open, Latest, Change, High, Low, Est. vol, Open int.

SWISS FRANC FUTURES

Table with columns: Mar 5, Open, Latest, Change, High, Low, Est. vol, Open int.

EMU EUROPEAN CURRENCY UNIT RATES

Table with columns: Mar 5, Ecu con. rates, Rate against Ecu, Change on day, % +/- on con. rates, % spread v. weighted, Div. ind.

PHILADELPHIA 65 CDS OPTIONS

Table with columns: Strike, Price, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec.

US TREASURY BILL FUTURES

Table with columns: Mar 5, Open, Latest, Change, High, Low, Est. vol, Open int.

EUROBANK OPTIONS

Table with columns: Strike, Price, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec.

BASE LENDING RATES

Table with columns: Bank, Rate, %.

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Advertisement for CME-SIMEX Euroyen Link featuring a globe with 'EUROYEN' written across it and contact information for Chicago Mercantile Exchange and SIMEX.

LONDON SHARE SERVICE

ALCOHOLIC BEVERAGES

Table listing companies in the Alcoholic Beverages sector with columns for company name, price, and change.

CHEMICALS

Table listing companies in the Chemicals sector with columns for company name, price, and change.

ELECTRONIC & ELECTRICAL EQPT - Cont.

Table listing companies in the Electronic & Electrical Equipment sector (continued).

EXTRACTIVE INDUSTRIES - Cont.

Table listing companies in the Extractive Industries sector (continued).

HEALTH CARE - Cont.

Table listing companies in the Health Care sector (continued).

INVESTMENT TRUSTS - Cont.

Table listing investment trusts with columns for name, price, and change.

BANKS, MERCHANT

Table listing banks and merchant companies.

BANKS, RETAIL

Table listing retail banks.

BREWERIES, PUBS & REST

Table listing breweries, pubs, and restaurants.

BUILDING & CONSTRUCTION

Table listing companies in the building and construction sector.

DISTRIBUTORS

Table listing distributor companies.

DIVERSIFIED INDUSTRIALS

Table listing diversified industrial companies.

ELECTRICITY

Table listing electricity companies.

BUILDING MATS & MERCHANTS

Table listing building materials and merchants.

ELECTRONIC & ELECTRICAL EQPT

Table listing electronic and electrical equipment companies.

ENGINEERING

Table listing engineering companies.

ENGINEERING - Cont.

Table listing engineering companies (continued).

EXTRACTIVE INDUSTRIES - Cont.

Table listing extractive industries companies (continued).

FOOD PRODUCERS

Table listing food producer companies.

ENGINEERING, VEHICLES

Table listing engineering and vehicle companies.

GAS DISTRIBUTION

Table listing gas distribution companies.

HEALTH CARE

Table listing health care companies.

EXTRACTIVE INDUSTRIES

Table listing extractive industries companies.

HOUSEHOLD GOODS

Table listing household goods companies.

INSURANCE

Table listing insurance companies.

INVESTMENT TRUSTS

Table listing investment trusts.

INVESTMENT TRUSTS - Cont.

Table listing investment trusts (continued).

INVESTMENT TRUSTS

Table listing investment trusts.

INVESTMENT TRUSTS

Table listing investment trusts.

INV TRUSTS SPLIT CAPITAL

Table listing investment trusts with split capital.

Advertisement for Computacenter, featuring the text 'digital PC From the UK's leading provider of distributed IT systems and services. Computacenter'.

OFFSHORE INSURANCES

LONDON SHARE SERVICE

INV TRUSTS SPLIT CAPITAL - Cont.

Table listing various investment trusts, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

LEISURE & HOTELS - Cont.

Table listing leisure and hotel companies, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

OTHER FINANCIAL - Cont.

Table listing other financial companies, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

PROPERTY - Cont.

Table listing property companies, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

SUPPORT SERVICES - Cont.

Table listing support services companies, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

AIM - Cont.

Table listing AIM companies, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

OTHER INVESTMENT TRUSTS

Table listing other investment trusts, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

LIFE ASSURANCE

Table listing life assurance companies, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

PAPER, PACKAGING & PRINTING

Table listing paper, packaging, and printing companies, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

RETAILERS, FOOD

Table listing retailers and food companies, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

TELECOMMUNICATIONS

Table listing telecommunications companies, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

AMERICANS

Table listing American companies, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

MEDIA

Table listing media companies, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

PAPER, PACKAGING & PRINTING

Table listing paper, packaging, and printing companies, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

RETAILERS, GENERAL

Table listing general retailers, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

TEXTILES & APPAREL

Table listing textiles and apparel companies, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

CANADIANS

Table listing Canadian companies, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

LEISURE & HOTELS

Table listing leisure and hotel companies, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

OIL, INTEGRATED

Table listing integrated oil companies, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

PHARMACEUTICALS

Table listing pharmaceutical companies, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

RETAILERS, GENERAL - Cont.

Table listing general retailers, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

TRANSPORT

Table listing transport companies, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

SOUTH AFRICANS

Table listing South African companies, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

OIL EXPLORATION & PRODUCTION

Table listing oil exploration and production companies, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

PROPERTY

Table listing property companies, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

SUPPORT SERVICES

Table listing support services companies, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

WATER

Table listing water companies, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

AIM

Table listing AIM companies, including their names, prices, and financial metrics. Columns include Name, Price, and other financial data.

Advertisement for CNBC (First in Business Worldwide) with the slogan 'Time is your most precious commodity.' and contact information.

GUIDE TO LONDON SHARE SERVICE. Includes instructions on how to use the share service, company classifications, and a list of included companies.

Vertical text on the left margin: 'housing', 'could 5m', 'investment', 'life offices', 'today'.

FT MANAGED FUNDS SERVICE

FT Citywise Unit Trust Prices are available over the telephone. Call the FT Citywise Help Desk on (+44 171) 673 4378 for more details.

OFFSHORE AND OVERSEAS

BERMUDA (SIB RECOGNISED)

Table listing Bermuda (SIB Recognised) funds including Fidelity Corporate Funds Ltd, Royal Bank of Canada US Fd Mgrs Ltd, and others.

GUERNSEY (REGULATED)**

Table listing Guernsey (Regulated) funds including ANZ Managed Co (Guernsey) Ltd, Commercial Union Capital Services, and others.

BERMUDA (REGULATED)**

Table listing Bermuda (Regulated) funds including Bermuda Int Investment Mgmt Ltd, Fidelity Corporate Funds Ltd, and others.

GUERNSEY (SIB RECOGNISED)

Table listing Guernsey (SIB Recognised) funds including AIG Investment Managers (Guernsey) Ltd, Adams & Northcote Fd Mgmt, and others.

IRELAND (SIB RECOGNISED)

Table listing Ireland (SIB Recognised) funds including AIG Fund Management Ltd, AIG Investment Managers (Guernsey) Ltd, and others.

IRELAND (REGULATED)**

Table listing Ireland (Regulated) funds including AIG Fund Management Ltd, AIG Investment Managers (Guernsey) Ltd, and others.

CHEMICAL INVESTMENT FUND ADMINISTRATORS LTD

Table listing Chemical Investment Fund Administrators Ltd funds including Chemical Investment Fund, Chemical Investment Fund, and others.

ISLE OF MAN (REGULATED)**

Table listing Isle of Man (Regulated) funds including AXA Equity & Low Int'l Fund Mgr, AXA Equity & Low Int'l Fund Mgr, and others.

JERSEY (SIB RECOGNISED)

Table listing Jersey (SIB Recognised) funds including AIG Fund Managers (C) Ltd, AIG Fund Managers (C) Ltd, and others.

JERSEY (REGULATED)**

Table listing Jersey (Regulated) funds including Barclays Int'l Funds, Barclays Int'l Funds, and others.

LUXEMBOURG (SIB RECOGNISED)

Table listing Luxembourg (SIB Recognised) funds including ARM ARMO Funds, ARM ARMO Funds, and others.

LUXEMBOURG (REGULATED)**

Table listing Luxembourg (Regulated) funds including AIG Fund Management Ltd, AIG Fund Management Ltd, and others.

JERSEY (SIB RECOGNISED)

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LUXEMBOURG (SIB RECOGNISED)

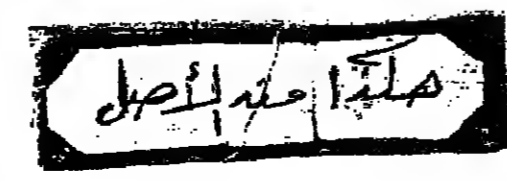
Table listing Luxembourg (SIB Recognised) funds including AIG Fund Management Ltd, AIG Fund Management Ltd, and others.

LUXEMBOURG (REGULATED)**

Table listing Luxembourg (Regulated) funds including AIG Fund Management Ltd, AIG Fund Management Ltd, and others.

OFFSHORE INSURANCES

Table listing Offshore Insurances including various insurance companies and their products.



هكذا من الأجر

FT MANAGED FUNDS SERVICE

FT Cityline Unit Trust Prices are available over the telephone. Call the FT Cityline Help Desk on (+44 171) 573 4376 for more details.

Main table containing financial data for various funds, including columns for fund names, unit prices, and performance metrics. Includes sub-sections like 'OTHER OFFSHORE FUNDS' and 'OFFSHORE INSURANCES'.

MANAGED FUNDS NOTES: Please note that the information included in this table is based on the latest available data...

Vertical text on the left margin: 'ousing', 'could', '5m', 'investment', 'life offices', 'ent today'.

LONDON STOCK EXCHANGE

MARKET REPORT

Sell programmes and US news upsets equities

By Steve Thompson, UK Stock Market Editor

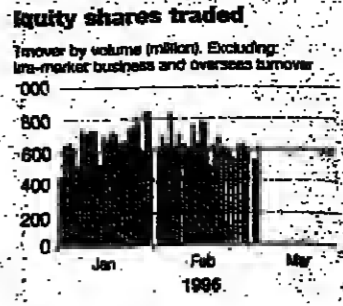
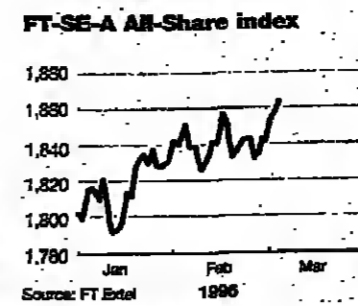
The effect of some strong US economic news, plus a series of programme trades, said to have been weighted on the sell side, combined to choke off what had been an exceptionally strong opening performance by UK equities.

But with Wall Street struggling manfully after an unhappy start, the FT-SE 100 index ended a busy trading session a net 3.5 higher at 3,777.1, well short of its previous closing high, 3,781.3, reached on February 2. The index did, however, record a new all-time intra-day high of 3,792.5.

The FT-SE Actuaries All-Share index reached another new record closing 5.76 up at 1,864.59. And the FT-SE Mid 250 index gave another power-packed performance, racing up to finish 67.3 higher at a record close of 4,372.2.

With bonds pressured, US equities struggled and the Dow Jones Industrial Average was down 20 points shortly after the start, before stabilising and moving into positive ground after London closed.

Manchester United's record-breaking Newcastle United topped the Premier League table on Monday as saw the reflected glory of Wall Street's overnight 3.6-point upsurge.



Indices and ratios table showing FT-SE 100, FT-SE Mid 250, FT-SE-A 350, FT-SE-A All-Share, and FT-SE-A All-Share yield with their respective values and changes.

Best performing sectors and Worst performing sectors table listing sectors like Transport, Electronic & Elec, and Oil, Integrated with their percentage changes.

BA beats traffic forecasts

Transport leaders scooped the Footsie pool with airports group BAA and British Airways turning in the day's two strongest performances.

BAA's bumper traffic returns for February took analysts totally by surprise and there were suggestions yesterday that a number of fingers were beginning to tighten around upgrade triggers.

The airline's traffic flows jumped 13.4 per cent, running counter to concerns about severe weather and the impact of the end to the IRA ceasefire.

The consensus expectation among City transport teams was probably 7 per cent growth.

The extra day, as a result of Leap Year, was said to have accounted for some three percentage points of the upturn but even so the numbers were impressive, and included very strong premium traffic flows.

BA's shares jumped 17 to 834p to run BAA, which shot forward 15 to 516p in turnover of 8.6m, a close second in the Footsie rankings.

BAA has been a dull performer lately, lagging the market by 1 per cent since the start of the year. A number of buy notes are known to be in circulation, and the company has recently been meeting with institutions.

BAO stayed in demand in spite of stories linking the group's name with the Cunard line, said to be up for sale following the agreed bid from Kvaerner of Norway for Cunard's parent company, Trafalgar House. The shares put on 5 to 540p.

Construction group Amec, in which Kvaerner has a 26 per cent stake, fell 4 to 85p on revived worries that the Kvaerner holding was about to be placed in London.

Alders promoted Following the bid by Unichem for Lloyds Chemists, retail specialists are scrambling around to identify the next bid in the sector.

Mr Mark Josefont, of Panmure Gordon, has identified Alders as a possible candidate, after examining three criteria that might well come under the scrutiny of a predator.

He has discovered that Alders is the only company in the sector that meets all of his criteria. It has one of the five highest P/E discounts to the market, one of the five most significant Enterprise Value ratios (a measure based on cashflow) and one of the five highest asset values compared to its share price.

Finally, he believes the company splits very cleanly between the department store arm and the international duty free arm - which could attract the attention of airlines such as Cathay Pacific and SAS. The shares were a penny easier at 181p.

Kingfisher, the group that owns Woolworths in the UK, jumped 14 to 534p after Panmure Gordon featured the company as its key buy in the sector.

Tarmac dips

News that Ministry of Defence police had raided its Wolverhampton offices pushed aggregate group Tarmac sharply lower in heavy volume. Down 5% at one stage, the shares closed off 3 at 119p.

The shares have outpaced the market by 26 per cent over the past three months and turnover yesterday surged to 15m.

There was no immediate explanatory statement from the company, which did not best please the City. "There is nothing marketmakers like less than uncertainty," said one leading analyst.

A top broker buy note helped push up Gleeson (M.J.) for the second day running. The shares jumped 58 to 303p.

British Biotech rose sharply in very thin volume after the company announced encouraging third quarter results and its share price.

Financial Times Equity Indices table showing performance of various indices like Ordinary Share, P/E ratio, and SEAD bargains.

the expansion of trials on its cancer treatment. Biotech shares responded positively to the company's announcement that it is expanding trials on its mastomast drug and will announce further results in May. The market also reacted positively to news that the company's leuprolin drug began a Phase III trial in the US in patients with acute pancreatitis. The shares jumped 272 to 2220p.

Oil stocks came under pressure as message grew over the possible acceptance by Iraq of United Nations conditions for limited oil sales. Potential extra supply would be negative for a market already likely to be oversupplied in 1996 and there were additional worries about Monday's news that OPEC is producing 1.5m barrels above its self-imposed ceiling.

Thirdly, Algeria and Venezuela want to increase production in respect of OPEC quotas. BP slipped 3% to 543p and Shell Transport 9% to 843p.

On Monday, Lehman Brothers lowered its recommendation on four international oil companies, citing a 75 per cent chance that Iraq will accept the UN's limited oil sale deal. It reduced its recommendation on Shell to neutral from overperform.

East Midlands Electricity improved 5 to 616p with the help of a buy recommendation from Citigroup. The broker argued that, since the regional electricity companies demerged their holding in National Grid, East Midlands was the only one to have underperformed the market.

The broker was also recommending Yorkshire Water on the basis that yesterday's announcement of a coverdible buy-back programme would share buy-back increasingly likely.

Mr Matthew Siebert, of Hoare, believes the company could comfortably repurchase 20m shares, or about 10 per cent of the equity. The shares closed 7 higher at 650p.

The latest intensification of the US computer price wars washed over us to electronics group specialist Cookson.

Amstrad ended as hacker in the FT-SE Mid 250 index, tumbling more than 3 per cent to close off 6 at 206p. Cookson, which puts out annual results tomorrow, came off 5 to 312p.

Among conglomerates, Harisons and Crosfield continued to gain ground on hopes for a two-way advance of 10.

Push groups continued to move ahead following recent strong results from Wether-spoon. Regof Inns jumped 55 to 920p and Wetherspoon added a further 10 to 753p for a two-day advance of 31. Allied Domecq came off 2 to 526p, as stories about a line of stock to offer built up around the

FUTURES AND OPTIONS

Table showing FT-SE 100 INDEX FUTURES (LIFE25) and FT-SE 100 INDEX OPTION (LIFE25) with columns for Open, High, Low, and Change.

LONDON RECENT ISSUES: EQUITIES

Table listing recent equity issues with columns for Issue, Amt, Price, and Date.

FT-SE ACTUARIES SHARE INDEX

Table showing FT-SE Actuaries Share Index performance from Mar 5 to Mar 12, 1996.

TRADING VOLUME

Table showing Major Stocks Yesterday with columns for Stock Name, Vol, and Change.

TENDER NOTICE UK GOVERNMENT ECU TREASURY BILLS

For tender on 12 March 1996

1. The Bank of England announces the issue by Her Majesty's Treasury of ECU 1,000 million nominal of UK Government ECU Treasury Bills, for tender on a bid-yield basis on Tuesday, 12 March 1996. An additional ECU 50 million nominal will be issued directly to the Bank of England for the account of the Exchange Equalisation Account.

2. The ECU 1,000 million of Bills to be issued by tender will be dated 14 March 1996 and will be in the following maturities: ECU 200 million for maturity on 11 April 1996, ECU 500 million for maturity on 10 June 1996, ECU 300 million for maturity on 12 September 1996.

3. All tenders must be made on the printed application forms available on request from the Bank of England. Completed application forms must be lodged, by hand, at the Bank of England, Customer Settlement Services (formerly Securities Office), Threadneedle Street, London EC2R 7AH, not later than 10.30 a.m., London time, on Tuesday, 28 March 1996. Payment for Bills allotted will be due on Thursday, 14 March 1996.

4. Each tender at each yield for each maturity must be made on a separate application form for a minimum of ECU 500,000 nominal. Tenderers above this minimum must be in multiples of ECU 100,000 nominal.

5. Tenderers must be made on a yield basis (calculated on the basis of the actual number of days to maturity and a year of 360 days) rounded to two decimal places. Each application form must state the maturity date of the Bills for which application is made, the yield bid and the amount tendered for.

6. Notification will be despatched on the day of the tender to the successful tenderers in whole or in part. For applicants who have requested credit of Bills in global form to their account with ESO, Euroclear or CEDEL, Bills will be credited in the relevant systems against payment. For applicants who have requested definitive Bills, Bills will be available for collection at Customer Settlement Services, Bank of England after 1.30 p.m. on Thursday, 14 March 1996 provided cleared funds have been credited to the Bank of England's ECU Treasury Bills Account No. 59005516 with Lloyds Bank Plc, Bank Relations, St George's House, PO Box 787, 6-8 Eastcheap, London EC3M 1LL. Definitive Bills will be available in amounts of ECU 10,000, ECU 50,000, ECU 100,000, ECU 500,000, ECU 1,000,000, ECU 5,000,000 and ECU 10,000,000 nominal.

7. Her Majesty's Treasury reserves the right to reject any or part of any tender.

8. The arrangements for the tender are set out in more detail in the Information Memorandum on the UK Government ECU Treasury Bill programme issued by the Bank of England on behalf of Her Majesty's Treasury on 28 March 1995, and in supplements to the Information Memorandum. All tenders will be subject to the provisions of the Information Memorandum (as supplemented) and to the provisions of this notice.

9. The ECU 50 million of Bills to be allotted directly to the Bank of England for the account of the Exchange Equalisation Account will be for maturity on 12 September 1996. These Bills may be made available through sale and repurchase transactions to the market makers listed in the Information Memorandum (as supplemented) in order to facilitate settlement.

10. Copies of the Information Memorandum (and supplements to it) may be obtained from the Bank of England. UK Government ECU Treasury Bills are issued under the Treasury Bills Act 1877, the National Loans Act 1968 and the Treasury Bills Regulations 1968 as amended.

Bank of England 5 March 1996

PHARMACEUTICAL BUSINESS NEWS

The twice-monthly international update on the pharmaceutical industry

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Marketing
Research & Development
Sales
Finance
Manufacturing

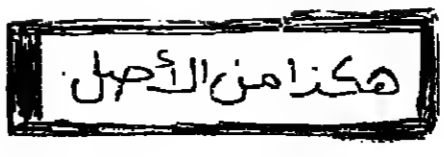
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WORLD STOCK MARKETS

Table of stock market data for various regions including EUROPE, GREECE, ITALY, NORWAY, POLAND, SWITZERLAND, and TURKEY. Columns include country, stock name, price, and change.

Table of stock market data for CZECH REPUBLIC, DENMARK, FINLAND, FRANCE, GERMANY, HONG KONG, and INDONESIA. Columns include country, stock name, price, and change.

Table of stock market data for MALAYSIA, MEXICO, NETHERLANDS, NEW ZEALAND, NORWAY, and PACIFIC. Columns include country, stock name, price, and change.

Table of stock market data for PORTUGAL, SOUTH AFRICA, SPAIN, SWEDEN, SWITZERLAND, THAILAND, and UNITED STATES. Columns include country, stock name, price, and change.

Table of stock market data for AUSTRALIA, CANADA, SOUTH AFRICA, and SOUTH KOREA. Columns include country, stock name, price, and change.

Table of stock market data for TAIWAN, THAILAND, and US INDICES. Columns include index name, value, and change.

Table of stock market data for AUSTRALIA, CANADA, SOUTH AFRICA, and SOUTH KOREA. Columns include country, stock name, price, and change.

Table of stock market data for AUSTRALIA, CANADA, SOUTH AFRICA, and SOUTH KOREA. Columns include country, stock name, price, and change.

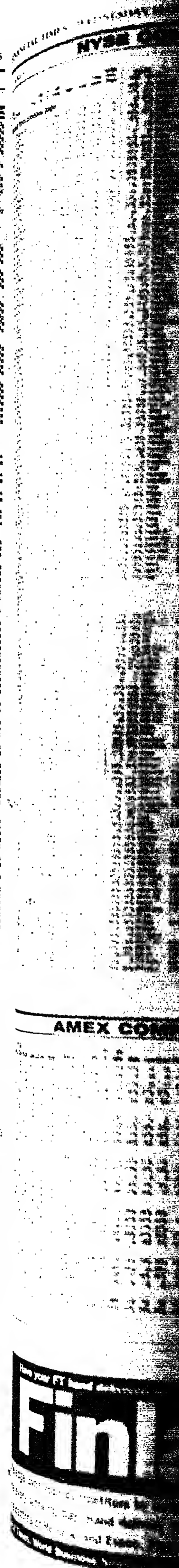
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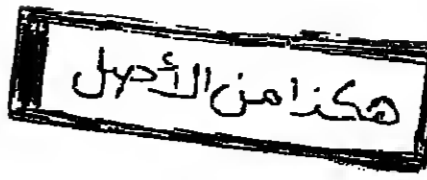
NEW YORK STOCK EXCHANGE COMPOSITE PRICES

Main table of stock prices with columns for stock symbols, prices, and changes. Includes sub-sections for various market indices and individual stocks.

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Continued on next page



NYSE COMPOSITE PRICES

Table of NYSE Composite Prices. Columns include Stock, High, Low, Change, and Volume. Includes sub-sections for 'Continued from previous page', 'U', and 'X-Y-Z'.

NASDAQ NATIONAL MARKET

Table of NASDAQ National Market. Columns include Stock, High, Low, Change, and Volume. Includes sub-sections for 'Continued from previous page', 'U', and 'X-Y-Z'.

AMEX COMPOSITE PRICES

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Continuation of market data tables from the previous page, including various stock listings and price movements.

AMERICA Technology issues stage bounce back

US shares shrugged off a drop in bond prices and rose by mid-session as technology shares bounced back from several weak sessions...

Wall Street

US shares shrugged off a drop in bond prices and rose by mid-session as technology shares bounced back from several weak sessions...

W.R. Grace

Shares in Hercules slid 4% at 96.25. BankAmerica added 1 1/2% or 3 per cent at 77 1/2. Late on Monday the bank announced that it would buy back up to \$2bn of its common stock...

Canada

Toronto was weak at mid-session in restrained trade ahead of today's federal budget. The TSE-300 composite index was down 17.06 by noon at 4,962.80...

Buenos Aires falls back

BUENOS AIRES was slightly lower by mid-session as brokers said that the market was taking a well earned pause after heavy gains in the last two sessions...

S Africa golds tumble

Johannesburg was depressed by a 5.4 per cent tumble in the gold index as industrial, too, gave up early advances...

EUROPE Amsterdam flattens out, Hunter Douglas climbs

After a good start, AMSTERDAM bumped into negative factors, such as a growing conviction that the US would probably not cut interest rates in the near future...

Hunter Douglas, the maker of window blinds and architectural products, rose F12 or 2 per cent to F196.70. The company reported a much stronger than expected 1995 profit...

ASIA PACIFIC Nikkei average and Hong Kong make solid progress

Tokyo The Nikkei average gained moderately on technical buying, which counterbalanced selling of high technology and banking stocks...

Roundup

An index futures short squeeze and further talk of covered warrant issues took HONG KONG 1.8 per cent higher. The Hang Seng index surged 200.03 to 11,454.08...

TAIPEI

TAIPEI lost 1.3 per cent after China announced that it would conduct ground-to-ground missile tests at sea and just off the island, between March 9 and 15...

FT-SE Actuaries Share Indices

Table with columns: Mar 5, Mar 4, Mar 3, Mar 2, Mar 1. Rows: FT-SE Actuaries 100, FT-SE Actuaries 200.

THE EUROPEAN SERIES

Table with columns: Mar 5, Mar 4, Mar 3, Mar 2, Mar 1. Rows: FT-SE Europe 100, FT-SE Europe 200.

after a 15.7 per cent drop on Monday afternoon. This, said Ms Barbara Altmann at B Metzler in Frankfurt, impacted on analysts' feelings about other companies...

PARIS

PARIS felt the burden of technical selling late in the day but the CAC-40 index just managed to keep a nervous grip on the 2,000 level, closing off 13.57 at 2,001.94.

VALPARAISO

VALPARAISO was pulled back from its highs by profit-taking after volume picked up on renewed foreign demand. The Comit index rose 9.09 to 620.93...

MILAN

MILAN was pulled back from its highs by profit-taking after volume picked up on renewed foreign demand. The MIB index rose 1.0 to 4,956.50...

BUDAPEST

BUDAPEST extended the rise made at the start of the week and the Bux index finished at another all-time high, up 65.37 to 2,347.84...

PRAGUE

PRAGUE rose for the seventh consecutive session. The FSE index gained 1.0 to 476.5. Leading stocks all did well...

BRNO

BRNO rose for the seventh consecutive session. The FSE index gained 1.0 to 476.5. Leading stocks all did well...

Help is on hand from intelligent agents

Help is on hand from intelligent agents. The appointment of a new finance minister, Mr Peter Medgyessy, has restored investor confidence in the country...

Year-End Report 1995

Year-End Report 1995. Profits in pre-tax results by 44 percent, to MSEK 594 (413). Incomes per share increased to SEK 11.00 (6.70). The proposed dividend is SEK 4.00 (3.00).



Office Products increased sales by 6 percent. The operating margin was 6 percent (3.8). The reasons for this positive development were a general improvement in demand and stronger market positions.

Retail Supplies and Equipment (Meto) reported a 2 percent increase in sales. The operating margin was 5.4 percent (6.6). Sales were weak in Germany, Meto's largest market...

Picture Framing Business Area (Nielsen & Bainbridge) increased sales by 3 percent. The operating margin was 14 percent (12.2). Markets in North America and Europe developed well.

ESSELTE logo and company information. Essetle is one of the largest suppliers in the world for office products, labelling systems and picture frames.

FT/S&P ACTUARIES WORLD INDICES. Table with columns: REGIONAL AND NATIONAL MARKETS, FT-SE Actuaries World Indices, DOLLAR INDEX. Rows include Australia, Austria, Belgium, Brazil, Canada, Denmark, Finland, France, Germany, Hong Kong, India, Italy, Japan, Korea, Malaysia, Mexico, Netherlands, New Zealand, Norway, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, United Kingdom, USA, World Index.

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مكثامن الأرحيل

FINANCIAL TIMES REVIEW

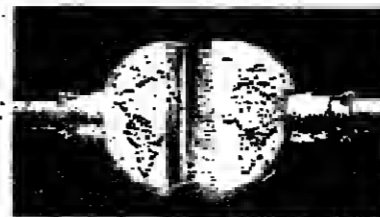


Interview View from the top Sir Peter Bonfield of British Telecom



Focus Digital systems Raw power of the information age Pages 4-15

Software at work Helpdesks Keeping the show on the road Pages 16-20



Directions Network management Strategies and options Pages 16-17

Stockwatch IT companies How shares are performing Page 20

Information Technology

Wednesday March 6 1996

Help is on hand from intelligent agents

Just as digital technology threatens to swamp us with information, advanced computer software may also provide a way to sift, sort and manage data in the information age, writes Paul Taylor

The digital revolution is having a profound impact on the sheer volume of data confronting businesses and individuals.

Electronic mail, the Internet and the arrival of digital broadcasting represent an information avalanche which together threaten to engulf us.

Managing this glut of data - and sifting out important material - is crucial for many organisations which depend on processing information in order to survive.

More advanced intelligent agents may communicate with each other, and co-operate to carry out tasks beyond the capability of a single agent.

While the commercial application of intelligent agents is still in its infancy, the technology has its roots in the research into distributed artificial intelligence undertaken at the Massachusetts Institute of Technology and elsewhere.

"Intelligent agents are an interesting by-product of artificial intelligence, an area of technology which has traditionally been perceived as one with little impact on business," says Dominique Verdejo of Ilog, the software development tools com-

pany. "Intelligent agents are now being increasingly integrated in various industrial applications, most notably in the telecoms sector and for developing enhanced services on the fast-growing Internet."

In the last couple of years, companies such as AT&T, Apple Computer, British Telecommunications, Hewlett-Packard, International Business Machines, Logica and Microsoft have begun to deliver key products and supporting technology.

Other information agent specialists include California-based Verity and executive information system suppliers such as Planning Sciences and Comshare which have begun to build intelligent agents into their products.

In the telecommunications market, intelligent agents with supervision, filtering and correlation capabilities are being used to automate processes in network management. US Sprint, for example, has designed a wide area network supervision application called Clearline, using an intelligent agent to correlate alarms and detect the origins of communications failures.

"Intelligent agents are also being used in the area of electronic commerce," says Ilog's Verdejo. "They are able to move from one machine to another, bringing with them encapsulated data and rules which allow them to negotiate on behalf of their owner in electronic transactions."

Elsewhere, banks are using intelligent agents to make loan decisions and manage credit risk.

However, managing information is probably the biggest and most immediate market for intelligent agents. Among specific applications, the Office of Media Affairs, at the White House receives hundreds of requests for information via the Internet each day. It redirects these requests through an agent-based replication server at MIT that uses formal language techniques to determine which documents the authors should receive.

BT, along with several other developers such as IntelX, has developed a programme which it claims "offers effective answers to 'information overload' - where peo-

ple have too much information to assimilate."

Its programme uses an information agent which searches texts stored on a computer to select those of most interest to the operator, and an automatic summariser that can abridge text to a fraction of its length without losing significant detail.

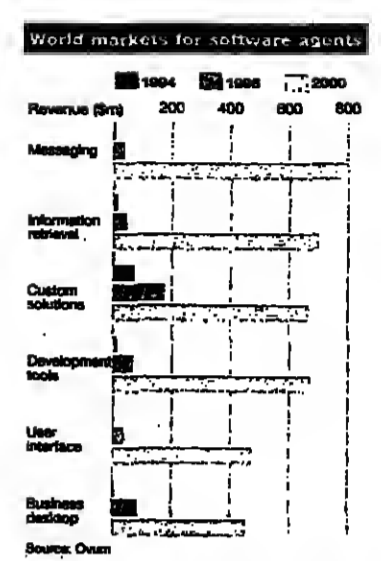
Tests comparing summaries with authors' own abstracts have shown that an abridgment down to five per cent of the original length typically contains some 70 per cent of the original's important information while a quarter-length summary keeps virtually all the information.

"There are many professions and business functions where fast, easy access to banks of data has brought huge advantages in terms of availability, but there is a parallel disadvantage as well," said Keith Preston, of BT's natural language group when the Summariser technology was unveiled last year.

"The fact that there is now so much 'on top' means it threatens to overwhelm the very people who need to absorb it - whether they are doctors or dentists needing to keep abreast of the latest research, lawyers collating case material or businessmen sifting through company and market information."

Others to exploit this new agent technology include Comshare, the decision support specialist. It has added a feature called 'Detect and

INFO DETECTIVE STORIES 15c. Presents THE SOFTWARE AGENT. IN OPERATION OVERLOAD by ROOT FINDA.



to the user's desktop". "One of the greatest challenges facing large corporations today is how to deliver information that is scattered throughout the enterprise and the Internet to scattered users in a timely, relevant and cost effective way," says Philippe Courtot, Verity's chief executive.

Verity's Topic search engine is already embedded in Lotus Notes Adobe Acrobat and more than 200 other publishing products. On the Internet, Topic has been chosen by Netscape and Quarterdeck among others. For example, Quarterdeck's new WebCompass programme enables PC users to perform searches on multiple World Wide Web search engines such as Yahoo, Lycos, WebCrawler and Digital's AltaVista from a single location.

"By the end of the decade, intelligent agent technology will have come to pervade our interaction with information technology, our desktop working practices, and many of the support services we use at home," predicts Ovum, which believes the worldwide market for agent software could grow from \$37m in 1994 to \$2.6bn by the end of the decade - led by information retrieval.

"Intelligent agents promise to provide electronic secretaries which will arrange your meetings and manage your diary; electronic librarians, which will retrieve the information you want from on-line sources; and a tireless workforce of office and factory staff, which will constantly carry out repetitive tasks with a degree of intelligence."

"Where the word processor supported an electronic typing pool, intelligent agents for the office will ease access to information and services for non-technical users. Agent technology can enrich workflow applications, and provide flexible easily updated process automation."

Fortunately, therefore, just as digital technology threatens to swamp us with information, digital technology may also provide the means to sift, sort and manage data in the information age.

"Intelligent agents will increase the performance gap between organisations which use IT effectively - and those which don't," warns Ovum.

Alert to its executive information system, financial reporting and retail planning applications which run on client/server networks.

Detect and Alert software agents, which Comshare calls robots, perform time-consuming, repetitive tasks and monitor targeted databases for significant changes. When a change is detected, an alert can be flashed to the user or flagged in a user's personalised electronic newspaper.

"Agent-based systems represent the next generation of strategic

weapons for information management," says T Wallace Wraithall, Comshare's chief executive.

Planning Sciences - formed by a group of former Lucas Industries software engineers - have already taken the technology a step further, building wandering information agents capable of working across a geographically dispersed network, into its latest version of Gentium, a highly sophisticated enterprise information system.

"Given the amount of information managers are asked to absorb, this type of programme is becoming essential," says Mr Ian Rawlings,

Planning Sciences' marketing director. "Companies are looking for a competitive edge, this gives it to them."

Gentium offers a range of agents including director agents, which watch computer directories for content changes; extractor agents which extract data from text files; phone agents which manage telephone connections for modem access to remote systems; process agents which manage the process, and bookworm agents which control the replication of data and objects.

Meanwhile, Verity's Topic software agents link the Internet, the internal network and CD-Roms, instantly searching, filtering and delivering personalised information from anywhere in the world, "right

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ELTE

Sir Peter Bonfield

'The key element is network management'

The appointment late last year of Sir Peter Bonfield as chief executive of British Telecommunications, the world's fifth largest telecoms operator, is a clear indicator of the future direction of the information technology industries.

Sir Peter, formerly chairman and chief executive of ICL, the UK-based computer company owned by Fujitsu of Japan, has no direct experience of running a telecoms company. BT is four times the size of ICL and still has some way to go in making the change from a bureaucratic, state-owned monopoly to market-driven, competitive organisation.



Sir Peter: 'The big question is whether the consumers will really find this technology useful'

Bonfield is, however, known for management skills and strategies which have kept ICL in the black over the past five years while larger rivals have been left floundering in red ink.

He also has an uncommon mastery of the technologies which underpin computing and, increasingly, telecoms: "Big switch technology" he points out "is going to be computer based. Switches will be built out of standard microprocessors: the software will be disconnected from the hardware and the key element is network management. All of this sounds very much like the computer business."

Bonfield, like, for example, Mr Ron Sommer, head of Europe's largest telecoms operator, Deutsche Telekom, is one of a new breed of telecoms executive whose skills, honed in different but related industries, are now critically important to the telecoms business.

Both have experience of consumer electronics. Mr Sommer was formerly head of Sony Europe. Bonfield worked for Texas Instruments before the move to ICL. And both have experience of running companies in industry where competition and technology have forced down profit margins. The telecoms industry, hugely profitable at present, can expect to see margins tighten and profitability shrink by the turn of the century for much the same reasons.

The computer industry, Bonfield points out, has been through a pain barrier: "You are talking to companies who are competitors one day, collaborators the next and partners the next. Until recently, this has not been common in the telephone business."

Even if the technologies are similar, he is not persuaded by the idea of convergence between computer and telecoms companies, pointing to the failure of NCR to thrive within AT&T as an example of the cultural divide

between the industries: "In some of the newer areas there may be links, perhaps joint ventures or new companies set up by combinations of telecoms companies and computer companies," he says. Mr Takuma Yamamoto, president of Fujitsu, warned Bonfield that he might find the move to telecoms "boring". After two months in the business, however, Bonfield is finding plenty to interest him.

"It is the combination of several things happening at once. Changes in the laws which regulate telecoms, particularly in the US, are driving huge amounts of activity. Companies are getting into markets from which they were previously barred."

"There is a lot of activity between players who would not have been easy bedfellows last year or the year before," he says, pointing to the link up between MCI, the second largest US long haul operator and Mr Rupert Murdoch's News International and the deals that a wide variety of customers are striking with Microsoft, the largest US software house.

"The other big issue everywhere is the approach of regulators to how a competitive business should be set up."

A significant difference between the computer business and the telecoms business, of course, is the presence of regulation. Most telecoms companies are still state-owned monopoly operators.

Where they are privatised and the market liberalised, as in the US and UK, regulators are imposed to protect customers from undue price rises and to oversee the emergence of a competitive market.

A regulator can affect profitability markedly. BT has returned about £1bn to its customers in the form of price reductions over the past few years through a formula which regulates many of its prices.

It is a global problem. Bonfield points out: "One of the things we are saying to regula-

Sir Peter Bonfield, chief executive of British Telecommunications and former chairman of ICL, the computer company, has an uncommon mastery of the technologies which underpin both industries. He is interviewed here by Alan Cane

tors around the world, and not just in the UK at the moment. Is that the risk-return profile [a measure of an investor's likelihood of making a return from an investment] of telecoms companies in the future will be quite different from the past."

"Regulators should not look at them as a utilities offering safe and substantial returns: there are technology risks, market risks, life cycle risks of the products and services. All of this makes the business harder to read, so we need an adequate return on investment."

He accepts that margins are going to be squeezed, and emphasises the need for cost-savings: "The emphasis has to be on whether we can grow the market with new services to offset the squeeze on margins. As a first impression, it seems to me easier to do this in telecoms than in computers."

He has in mind the value-added services such as call-minder and call-back, based on conventional technology or on-line services such as BT's "Wireplay", online videogames played over the public network and currently being tested in the UK.

do not want to deplete one to fund the other. We've got to do both and be more innovative in how we do it."

Bonfield's search for ways to strengthen BT's international activities will be watched closely by competitors from both East and West. AT&T, the largest US company, claims to be tackling the UK market seriously: "I do not think anybody here is under any illusions about AT&T's ability to be a good competitor, although it may take it some time to build up customer numbers," Bonfield says.

Bonfield's search will be closely watched by competitors

Deutsche Telekom, France Telecom and Sprint of the US seem to have the green light to challenge BT and MCI's Concert alliance for international customers.

A member of a number of high level committees examining and advising on the future of the industry, Bonfield has concerns which go beyond simple competition - "the big question is whether the consumers will really find this technology useful," he says.

"Will it generate this utopia of a future where we will all be more efficient, more perfectly informed and better entertained?"

"Or will the technology simply cause 'technofear', with continued worries about unemployment and so on. The industry itself has got to tackle that. If the technology simply generates hostility, we will not get very far."

Nicholas Negroponte, MIT guru

Middle-sized companies most at risk in digital future

We used to think of information technology as a device that sat on the desk, or fitted into a pocket - today, it is woven into the fabric of our lives," says Nicholas Negroponte, director and co-founder of the Media Lab at the Massachusetts Institute of Technology (MIT).

He believes the increasing digitisation of information - turning video, text and sound into streams of bits that can be sent over global networks - will have far-reaching effects on industries and individuals.

Some of the most informed speculation about the future of information technology comes from Nicholas Negroponte, the US academic who is also a columnist in the influential US magazine *Wired* and author of *Being Digital*. Nicholas Negroponte, director of MIT's Media Lab talked to Joia Shillingford at the World Economic Forum in Davos, Switzerland

describe how it destroyed a town the size of Boston if being read by Bostonians or the size of Manchester if being read by Mancunians.

A weather report for Alaska could describe 55°F as a "warm 55 degrees," whereas one for people living in Florida would describe it as a "cool 55 degrees."

Television is also set to change. As digital television channels become available, TV will become a form of data broadcast, which broadcasts digital video on some channels, some of the time but at other times broadcasts data or digital radio.

"TV broadcasters have to get into the data broadcast business," says Negroponte. He sees television as getting more interactive. Instead of a few cameras trained on a football match, you could have cameras capturing every point of view, so that viewers could decide what they wanted to look at.



Nicholas Negroponte: 'Publishers will end up being talent scouts'

Media Lab payroll are computer scientists; the rest are drawn from all walks of life including photography, filmmaking, architecture (Negroponte's first degree subject at MIT) and so on.

When the Media Lab was founded in the early 1980s, the idea that video, publishing and computer interactivity would enrich each other seemed far fetched to some. But it has been vindicated by growing convergence between the information, entertainment, telecoms and computer industries.

Today, the Media Lab is funded to the tune of \$25m by 160 companies in a wild mix of industries: not just IT and telecoms, but also toys, clothing and furniture. Sponsorship is drawn 50 per cent from US companies, 25 per cent from Europe and 25 per cent from Japan. Sponsors include IBM, BT, Lego and Reuters.

Of the 100 projects in which the Media Lab is involved, most fall into three groups: learning and common sense; perceptual computing; and information and entertainment.

They range from computer-based intelligent agents which help pick music you will like (learning and common sense) to front door knobs that recognise you (perceptual computing) to three-dimensional TV (information and entertainment).

In the future, says Negroponte, you may buy a television in a paint can and literally paint it on a wall. Or wear a computer in a sports shoe that is powered by walking and communicates with your wrist-watch. When he says IT will be part of the fabric of our lives, he is not always being metaphorical.

Impact on industry

"If an industry can be turned from atoms of matter into bits of information on a computer, it will be threatened quickly by the digital revolution," says Negroponte, author of *Being Digital*. "If it can't (such as with hamburgers or milk), the transition will be slower."

For example, the atoms in a coin or banknote will increasingly be replaced by credit card payments and digital cash. "1996 will be the year of digital cash," says Negroponte.

The banking industry is in big trouble, he adds, unless bankers can find a way of adding value to the bits. They will have to become participants in the digital world and show that they can keep your bits (of electronic money) safely for you.

Other industries threatened by the replacement of atoms with bits include telecoms companies and publishers. According to Negroponte: "The transport of bits (over phone lines) is a crummy business. "The people who will make money are the people who make the bits, add value to

them, own them or protect them. Disney, which owns lots of bits (such as digitised video and images), can distribute and use them in new ways."

Previously, says Negroponte, publishers have been in the atom business - for example, delivering newspaper pages made up of atoms. But with the growth of online publications, they will increasingly be delivering bits.

This will change the economics of publishing and lead to "disintermediation" - or loss of the middle. "The digital world gets bigger and smaller at the same time, and the middle falls out," says Negroponte.

"There is little room for middle anything; middle managers or middle-sized companies." Big organisations can offer a

wide variety of content. Medium-sized organisations have little advantage over small ones once the cost of entry for publishing (on the internet, for example) is lowered.

"There will be Rupert Murdoch at one end and a Moroccan housewife with a couscous file server on the Net at the other, and nothing in between," predicts Negroponte.

One casualty of this changing world will be academic journals publishing new material accompanied by peer reviews (such as those published by Reed Elsevier).

A peer review can take a year and a journal can cost \$300-£1,000. Negroponte believes "this will be a dead business in the next few years. Faculty won't be publishing that way." He expects this sort of article to be published online instead.

"Publishers will end up being talent scouts," says Professor Negroponte, who is also a founder of, and writer for, *Wired* magazine. "They will discover authors and publish them. But once the authors are as well known as Douglas Adams or Michael Crichton they won't need a publisher - they'll put their work online themselves."

However, putting publications online also creates new ways of presenting information. The Fishwrap project at the Media Lab seeks to make news stories more meaningful depending on the audience.

For example, a report on a disaster (such as Bhopal) could

Impact on individuals

In other ways, too, Negroponte expects the digital revolution to give people more choice. He says: "Now we live a very synchronous existence, with large numbers of people watching the same television programme at 8pm or working from 9am-5pm."

"But life will become far more asynchronous and personalised. People will be able to watch what they want when they want, and work where and when they want."

Some people have concerns about the blurring between work and personal lives that technology makes possible. But

Impact on individuals

the way home. Or your car could log on to the Net and download a weather forecast.

"The future of IT is buried in all the other areas of our lives," says Negroponte. This is why MIT's Media Lab takes a multidisciplinary approach to predicting and inventing the future.

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IT Directions: Video and tele-conferencing.
Software at work: statistical analysis and modelling packages in finance and industry.

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Focus on mobile computing
IT Directions: Computer-telephony integration, CTI.
Software at work: voice recognition and translation.

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Profile: Marco De Benedetti - By Michael Dempsey

Energetic and nimble newcomer

Marco De Benedetti is managing director of Olivetti Telemedia, which exists to exploit the convergence of telecoms and data transmissions.

Marco De Benedetti, one of three sons of Olivetti chairman Carlo De Benedetti, manages Olivetti Telemedia. Family succession is not a common feature in the IT industry, but then, the technology world is still a newcomer in terms of industrial history.

The 34-year-old Marco owes his MBA and early experience to more traditional business institutions in the US, including Procter and Gamble and New York investment bank, Wasserstein. This type of background usually produces a distinctive product. But Marco De Benedetti has emerged unscathed from an immersion in formal American business practice.

Sporting brown suede shoes and toying with a mobile phone in a display of impatient energy, he is recognisably European.

Telemedia is a multimedia and telecoms venture that carries responsibility for Carlo De Benedetti's grand plan to steer the computer-maker away from the competitive personal computer market, with its ever-diminishing margins.

Telemedia exists to exploit the convergence of telecoms and data transmissions. Telemedia was formed in 1994 and has already notched up a string of significant international deals. Infostrada is a joint venture with Bell Atlantic that has gone on to establish an operation with France Telecom. This will create Italy's second fixed-line phone network, an alternative to Telecom Italia. Hughes Olivetti Telecom will market satellite telecoms services with Hughes Network Systems. Videostada is a joint venture with US West to develop local cable networks in Italy.

Olivetti's Cambridge Laboratories are a hub of Telemedia activity: this is where much of the company's research into the emerging Asynchronous Transfer Mode, or ATM, technology is based. ATM is perceived as a crucial delivery mechanism in the race to get voice, data and visual images flowing down telephone lines and emerging coherently for commercial and domestic customers.

De Benedetti is based in Milan but visits Cambridge once a week. He is sanguine about what sounds like a hideously complicated acronym - "maybe ATM is not a nice word, but the concept is very simple. It provides a standard for multimedia applications," he says.

This multimedia marketplace has an estimated value of



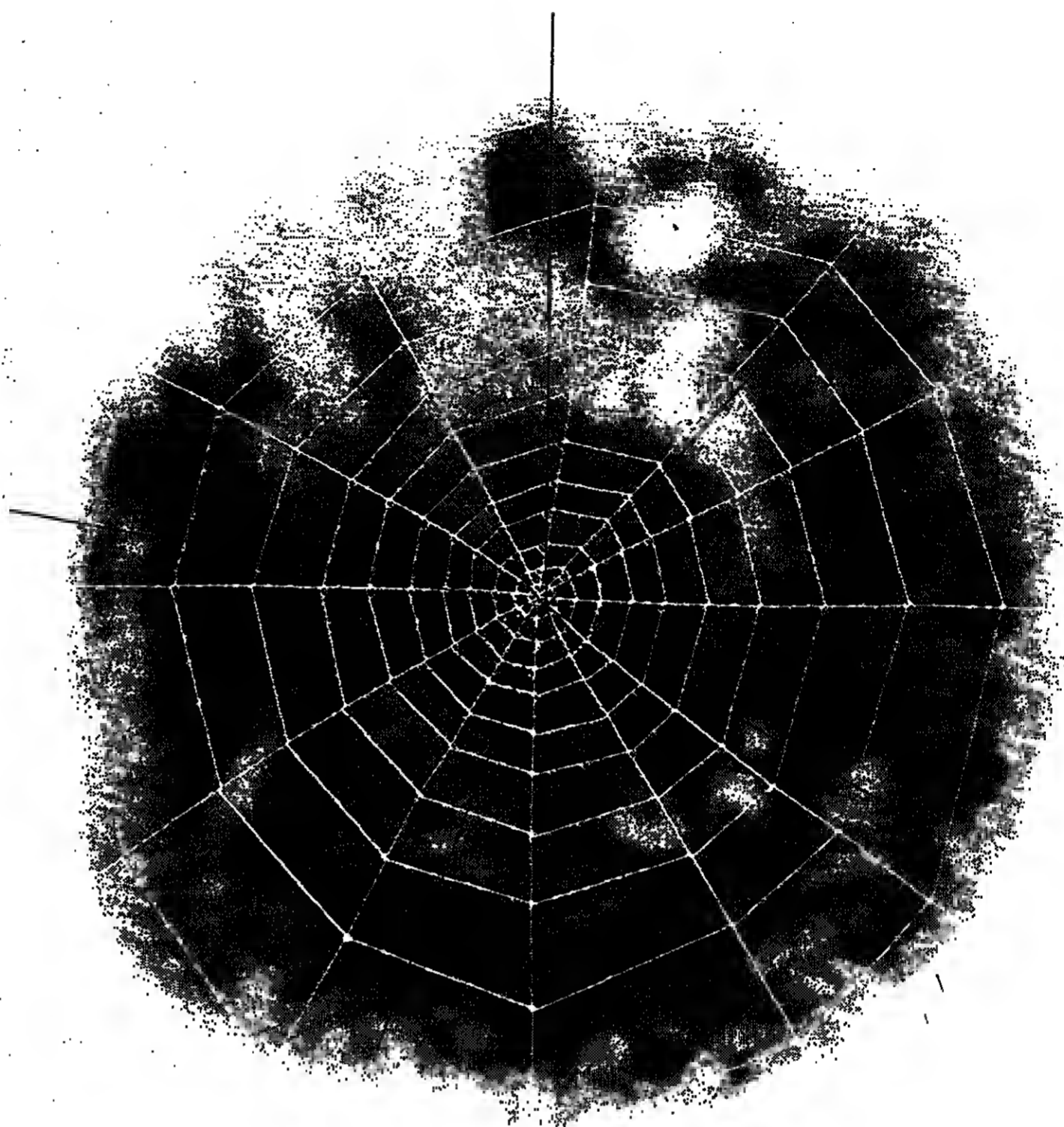
Marco De Benedetti, 34, claims that Telemedia, formed in 1994, will be nimble enough to survive in an unpredictable world

Continued on page 7

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The journey ahead

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The Worldwide Web of today's Internet offers a tantalising foretaste of even greater wonders to come. Soon, the ability to access and exchange any combination of text, data, voice messages, sounds and moving images instantly will be commonplace. But while a net can be a great gatherer of riches of all kinds, can it not also be a snare for the unwary?

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NEC

FT IT

The advance of digital technologies - By Paul Taylor

Raw power of the Information Age

The steady advance of digital electronic systems, based on the 'ones and zeros' of binary computer language, is sweeping away the remaining distinctions between data processing and telephony, leading to the dawn of a new information age, epitomised by the growth of the Internet

Digital systems reshape the working world

Here and on the following 12 pages, FT writers examine the impact of the integration of computer and telephone technologies

Digital technology has made it possible to convert words, sounds, pictures and moving images into coded digital messages which can be combined, stored, manipulated and transmitted quickly, efficiently, and in large volumes without loss of quality.

As a result, electronic commerce and the multimedia revolution are driving the computing and telecom worlds into ever-closer contact, forcing two industries with traditionally different histories and cultures to compete and co-operate.

The relentless advance of semiconductor technology, the emergence of a personal computing standard and the shift to distributed computing and inter-networking are providing the raw power for the 'information revolution'.

Electronic commerce - By Paul Taylor

Fresh opportunities in a vibrant marketplace

Any network used for electronic commerce has to address security

The recent rapid growth of the Internet and inter-networking has focused attention on the opportunities for electronic commerce, not only as a means to cut costs and improve efficiency, but also as a way to tap into a new and vibrant emerging marketplace.

Electronic commerce, already developing in fledgling form on the Internet, opens up a range of new possibilities. It extends the reach of small businesses by enabling them to sell into markets they may never have dreamed of entering by conventional means.

According to Kelly Knutson, senior vice-president of Visa International, any electronic commerce system will have to satisfy four basic security concerns: privacy of the data, integrity of the data, authentication of both the buyer and the seller and making sure that the order is received and processed and verification is sent back to the buyer.

At the start of last month, Visa and its arch rival, MasterCard International, agreed to work together on a technical standard to safeguard payment card purchases made over open networks such as the Internet.



Victor Miller: crucially, electronic commerce requires 'building a secure and stable system'

Card International, agreed to work together on a technical standard to safeguard payment card purchases made over open networks such as the Internet.

Even ahead of this, the race to set up shop in cyberspace is on. Massachusetts-based Open Market, an Internet commerce provider, listed just 598 commercial sites in its Web sites index at the end of September 1994. By the start of September last year, that number had jumped to almost 12,000.

According to a recently published NOP Research Group survey on commercial use of the Internet, more than 150,000 people in Britain have already used the Internet to purchase products and services in the

past six months. "The Internet is still very much in its early stages as a commercial tool," said Rob Lawson of NOP, "but our research suggests that the volume of those willing to consider a purchase in the next six months is almost three times those purchasing in the last six months."

The Barclays paper says: "Electronic commerce has the potential to challenge the business model - the relationship between banks and customers. Banks will need to study the underlying value chain - how and when value is created and delivered to the customer - to identify their strengths and weaknesses in this new scenario."

As the balance in delivery channels changes between branch networks and electronic networks, so the control of the delivery channel gradually passes from the financial services providers into the hands of third parties. At the same time, the barrier to entry for new competitors - the need to build up a large branch network - disappears.

Already the Internet has its first network-only bank. Security First Network Bank opened its virtual banking doors for business in mid-October. Forrester Research heralded SFNB's debut as "another Web wake-up call for the financial services industry."

Today, with online services such as CompuServe, America Online and Prodigy all offering Internet access capabilities, such distinctions are no longer clear. The picture is further muddled by the fast growth of national and local Internet access services and the development of branded Internet "communities".

Convergence is hardly the best word to describe this rapid industry transformation. Commercial online information services have suffered a high-speed, head-on collision with the Internet.

The fallout is most clearly demonstrated by Microsoft's decision to redefine the Microsoft Network (MSN) introduced last August as a new online service, as an Internet-based service and subsequently

to scrap plans for proprietary software designed to create multimedia electronic publications for MSN. Prior to the launch of MSN, established online information companies feared that Microsoft would use its near monopoly in the market for personal computer operating system software to gain an unfair competitive advantage in the online information services arena.

Industry analysts predicted that MSN would quickly become the world's largest consumer-oriented online service. The US Justice Department entered the fray by investigating the potential anti-trust implications of Microsoft's plans.

Yet such concerns quickly evaporated as MSN failed to live up to analysts' expectations. In December, Microsoft announced that it had changed its plans for MSN and would, in future, direct its efforts at creating products and services built on Internet standards.

Bill Gates, Microsoft chairman and chief executive, acknowledged that his company had been slow to respond to the rapidly growing popularity of the Internet and vowed to put Microsoft in the forefront of the market for Internet software.

Established online information services have also been forced to adapt. Prodigy, a joint venture of Sears Roebuck

and International Business Machines, moved quickly to add an Internet "Web browser" to its services. CompuServe and AOL quickly followed suit.

But the bleeding of Internet and proprietary online services does not stop there. Prodigy has embraced Internet software standards and is redefining itself as an Internet-based service. This "if you can't beat the Net, join it" strategy is similar to Microsoft's new approach.

America Online is hedging its bets. As the largest commercial online service with more than 5m subscribers, AOL is not ready to succumb to the Internet frenzy. While it offers subscribers a link to the Internet with a high-speed Web browser, AOL remains a distinct entity.

The company has, however, established a new subsidiary through the acquisition of Global Network Navigator, a pioneer of Internet-based information services. GNN combines its own content and that of publishing "partners" with services aimed at making the entire Internet easier to use.

GNN is "pitched to mass market America," says Lisa Gansky, vice president of marketing. "We aim to give users a powerful experience of the Internet in their first hour online."

In the first three months after its launch, last autumn, GNN attracted more than

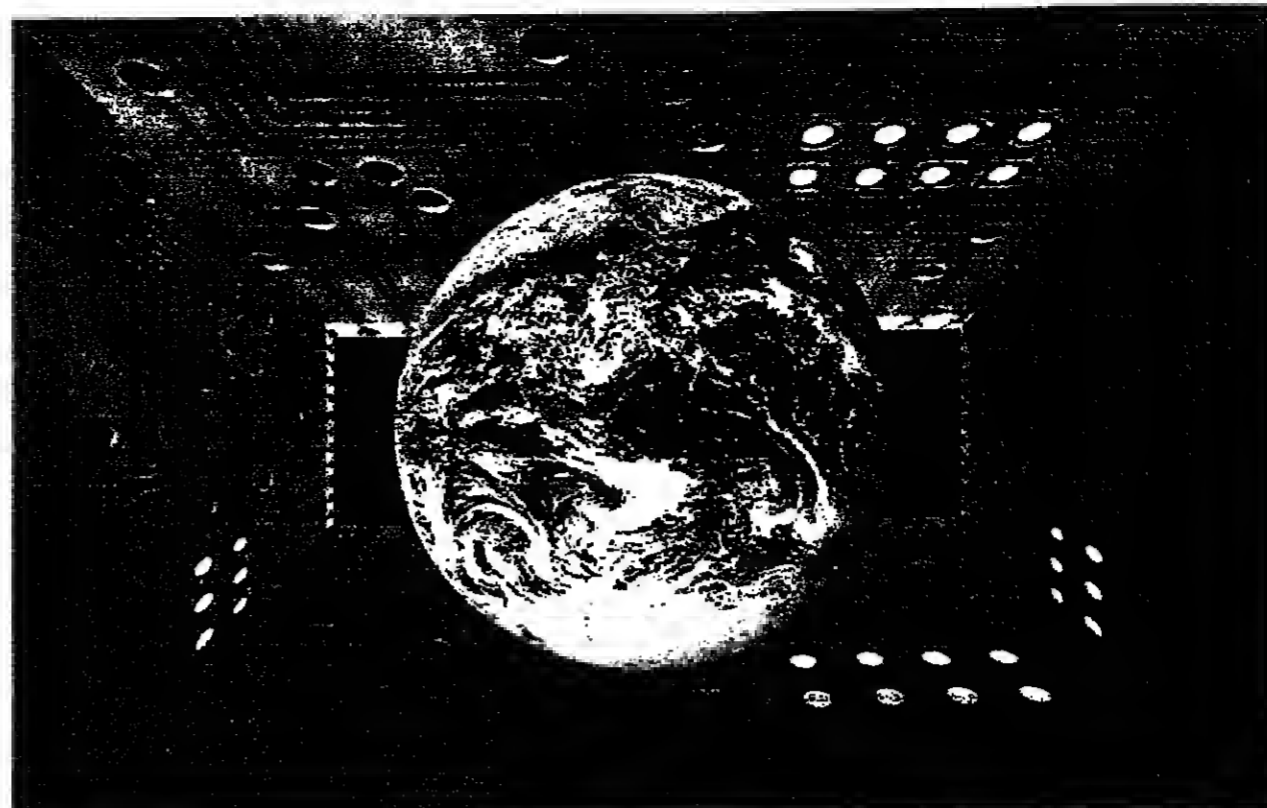
100,000 subscribers; its Internet site is being visited by half a million people a month. CompuServe has taken a similar "market segmentation" tack. In addition to its flagship online information services, CompuServe has launched an Internet access service called Sprynet with unlimited time on the Internet for a fixed monthly fee.

This month CompuServe will also launch a new service - called Wow! - aimed at the first-time online user who might be intimidated by the scope and power of the Internet.

As the commercialisation of the Internet moves apace with the introduction of fees for access to electronic publications, online services also see an opportunity to become the managers of the "toll booths" on the information highway, providing subscribers with "free" access for a set monthly fee.

The outcome of this market battle has yet to be seen. It appears, however, that marketing savvy and the ability to create high quality electronic publications may win the day. In this regard, the world of online information services is remarkably similar to traditional publishing media.

New services target home users: see facing page



opportunities for individuals and institutions to create, purchase or sell, and use a new generation of abundant electronic content - the heart of the new information society," predicts Microsoft.

Digital technologies are already enabling companies and other organisations to improve productivity, accelerate product cycles and compete more effectively in the global markets of the 1990s.

Reflecting this, corporate spending on IT, particularly telecommunications, continues to grow rapidly. For example, a survey conducted in Britain among 1,000 IT executives in leading UK businesses, by Price Waterhouse, the accountancy firm, found that the average IT budget rose by nine per cent in 1994/95.

Spending on telecoms soared by 43 per cent in the year to last April. As a result, telecoms now account for 8 per cent of total IT spending, up from 6 per cent a year earlier. "The sharp increase reflects the growth in computer networking and in the integration of telephone and computer technology, which is transforming

The commercial Internet - By Louise Kehoe in San Francisco

'If you can't beat the Net, join it'

Commercial online information services have suffered a high-speed, head-on collision with the Internet

Just a year ago, it was possible to draw clear distinctions between the Internet - an unregulated, chaotic but exciting new world of online information resources - and the more structured environment of consumer-oriented online information services.

Today, with online services such as CompuServe, America Online and Prodigy all offering Internet access capabilities, such distinctions are no longer clear. The picture is further muddled by the fast growth of national and local Internet access services and the development of branded Internet "communities".

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New services target home users: see facing page

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Converging technologies - electronic commerce

Future of un...

Operating under a cloud of uncertainty

power into the home is setting the stage for a battle between the PC and the TV to determine which will emerge as the dominant multimedia and interactive entertainment platform.

For people such as Mr Pfeiffer, there is no contest. Compaq, which already dominates the market for commercial applications server, is predicting not only multiple PCs in the home, wired together with a home server, but also a proliferation of computing platforms for communication, information access and entertainment.

Looking towards the end of the decade, Mr Pfeiffer says: "We see a world not just of basic connectivity as we have today, but also wide area information access and collaborative computing drawing on today's tools like Lotus Notes as well as new Internet tools under development."

"In short, we see a world in which everyone in a company will have access to and work from the same, totally refreshed data that represents what is happening in the world at that moment."

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New services target home users: see facing page

Online services - By Stephen McGookin

Lure of unpredictable treasures

Lucrative potential for mass expansion is thought to lie in the mainstream commercial services aimed at home users

When considering the phenomenal recent growth in the market for online services, we have to distinguish between Internet access providers, of which there are now a couple of hundred in the UK alone; business-related information services, and the commercial proprietary networks which offer a range of content, such as CompuServe or America Online.

The access providers - of which Demon Internet and

Unipalm Pipex are successful examples - have concentrated on low-cost connections for people keen to get straight to the Internet, while "the battle for desktop real estate", as Michael Bloomberg once put it, means that success in the highly-competitive, premium-priced business sector is measured in timeliness and volume of research intelligence.

There are a growing number of services - PhoneLink's Tel-Net service, for example, which offers a wide range of travel and directory information - serving the personal and small business user. But it is the third grouping, the mainstream commercial services aimed at home users, where lucrative potential for mass expansion is thought to lie.

The US Market research firm Simba Information last year

predicted that the number of subscribers to consumer-based online services would increase by about 86 per cent to more than 11m worldwide in 1995 - with that number more than doubling by 2000.

CompuServe was the first commercial online service to make a significant breakthrough in Europe, its huge range of diverse, premium-rate subject forums initially overwhelming many first-time users, but nevertheless whetting their appetites for more imaginative services.

CompuServe currently boasts upwards of 8.5m members worldwide and says it is adding about 150,000 users each month. It has about 400,000 users in Europe, concentrated in the UK, France and Germany, and about 180,000 in Japan through an alliance with NiftyServe.

America Online - unrelated to either UK Online or Europe Online - is probably the world's fastest-growing online service, with 7m users worldwide. It launched in the UK at the beginning of this year and in France this month in collaboration with German media company, Bertelsmann. It launched in Germany before Christmas, with regional con-

tent as well as the US-based service available. Like CompuServe, access to the World Wide Web is integrated within its online service.

Prodigy is the smallest of the three leading US online networks, with about 2m subscribers. While content providers such as the *Los Angeles Times* may have forsaken it in favour of the Web, it says it has added about 200 content subject areas since April, which it may open to non-Prodigy users if it can work out a charging arrange-

The swiftly growing America Online service now has 7m users

ment.

The Microsoft Network is the manifestation of the world's largest software company's ambitions for a global online service. It is available in 52 countries worldwide. Having ridden early industry and regulatory worries about its potential market domination due to it being launched along with the new Windows 95 upgrade

software, it limited itself to an initial 500,000 subscribers.

Delphi, launched in 1991, was bought by Rupert Murdoch's News Corporation in 1994 and has about 140,000 subscribers worldwide. It is providing content including a link to *The Times* through its Web site (www.delphi.co.uk).

Apple's eWorld, which comes packaged with Macintosh computers and was launched in Britain and the US in 1994, has about 90,000 subscribers.

Europe Online launched at Christmas with individual services for subscribers in France, Germany, Britain and Luxembourg, with regionally tailored content which restricts Web access to explicit sites.

It is unlikely you will find anything like the "Live Nude Videocasting" - recently being touted on various Internet newsgroups - by dialling up UK OnLine, which was launched in September last year and has specifically targeted family subscribers. It claims that its research indicated that 64 per cent of UK families would prefer British-based content over a US-oriented service, and all of its subscribers are from the UK. A family membership costs £14.99 and provides four individual



"Virtual" assembly instructions: Web surfers can now access three-dimensional, animated assembly instructions for "flat-pack" furniture. The images are created by the visual computing company, Silicon Graphics. DIY enthusiasts can examine and rotate components to rehearse complicated assembly work

e-mail addresses and unlimited use of the service facilities.

Again, UK Online's research told it that 93 per cent of its adult users would prefer to have parental control over what children might have access to. It offers a commitment that the content it supplies will meet its "strict editorial criteria to ensure its suitability for a family audience."

while its system of parental control allows parents to specify what content children have access to and also how much time they can spend online.

With content-providers considering their options between Web and partnership deals with proprietary services, the commercial online companies may have realised that their

future is inextricably tied up with the free-access culture of the broader Internet.

But with estimates of the online industry's revenue pie usually including the word "billion", they trust the market will continue to grow for their value-added services in partnership with the varied, yet unpredictable, treasures of the Web.

Network security

Operating under a cloud of uncertainty

Companies face a complex web of technical, legal and moral questions

The IT security threat has long been depicted in terms of wild-eyed hackers hunched over terminals late into the night. But while there is real cause for concern about criminal activity over computer networks, large corporations are very worried about another threat to their use of electronic communications.

Meanwhile, government restrictions on the use of data encryption codes in various countries are limiting the ability of commercial organisations to protect themselves.

Cryptography is at the heart of this dilemma. Governments all over the world rely on specialist intelligence units to break down data transmissions from other nations and individuals while encrypting their own messages.

The US National Security Agency and the UK's Government Communications HQ are the best-known of these agencies.

The NSA is notorious for obsessive secrecy. Meanwhile, in the UK, the GCHQ has lifted its traditional reticence in recent years to offer advice to British companies concerned with data security.

Mr Roger James, chairman of Cheshire-based communications software specialist Boldon James, has worked with GCHQ to define data standards for UK government departments. Mr James plays down the cloak-and-dagger image of GCHQ, but instead he describes his contact with its staff as "horribly technical". He also portrays the Cheltenham code-breakers as "very down-to-earth people".

There are two ways of looking at security, he says - "one is the practical approach, which means accepting that perfect security is impossible to obtain. The other is the Ivory Tower approach, which involves dreaming of a world in which security is absolute. There are a lot of 'practicalists' in GCHQ".

Mr James, whose clients include the Britannia Building Society and the German Navy, is active in the European Electronic Messaging Association. He is concerned at the lack of a co-ordinated European policy on encryption. And he fears that effective security measures could become illegal with the advent of future legislation curbing the availability of encryption software.

It is illegal at the moment to use strong cryptography techniques in France without first depositing the key to unlocking your codes with the French government. UK companies developing sophisticated security programs find their software classified as munitions and subject to tight export restrictions, even within the EC.

In the US, the author of strong encryption program, called "Pretty Good Privacy", found himself facing a Grand Jury and possible charges of exporting prohibited technology. The NSA has proposed that all personal computers made in the US contain the Clipper Chip. This security feature would give the NSA easy

access to any data communications, however the user chose to encode it. The proposal is currently stalled, having met with ferocious opposition.

Both suppliers of information technology and industry at large need to clear a path through this international maze. The legal structure surrounding the use of encryption technology is of particular concern to anyone working in electronic commerce.

"The Clipper Chip debate raised a fundamental moral issue," says Mr James. "Software technology means that strong encryption, previously available only to the military, can now be obtained by the public. If governments then find messages hard to break, it leads immediately to a conflict of interest."

One company that has confronted this apparent conflict of interest between state and commerce, with its attendant uncertainty, is the Anglo-Dutch oil giant, Shell. Mr Nick Mansfield, a Shell technical consultant specialising in information security, says the company is enthusiastic about the potential for eliminating paperwork across its sprawling global operations - "we are committed to electronic trading," he says. "We have a vast electronic-mail network. But there is still a section of our business where we have to use paper."

Contract agreements are at issue here. Until security can be absolutely guaranteed, bilateral agreements must be seen to be tamper-proofed. Shell is about to deploy technology to secure personal computers and PC servers across the world. This e-mail security system will cost around £1m in software purchasing plus £100,000 a year to run. It will have 4,000 users.

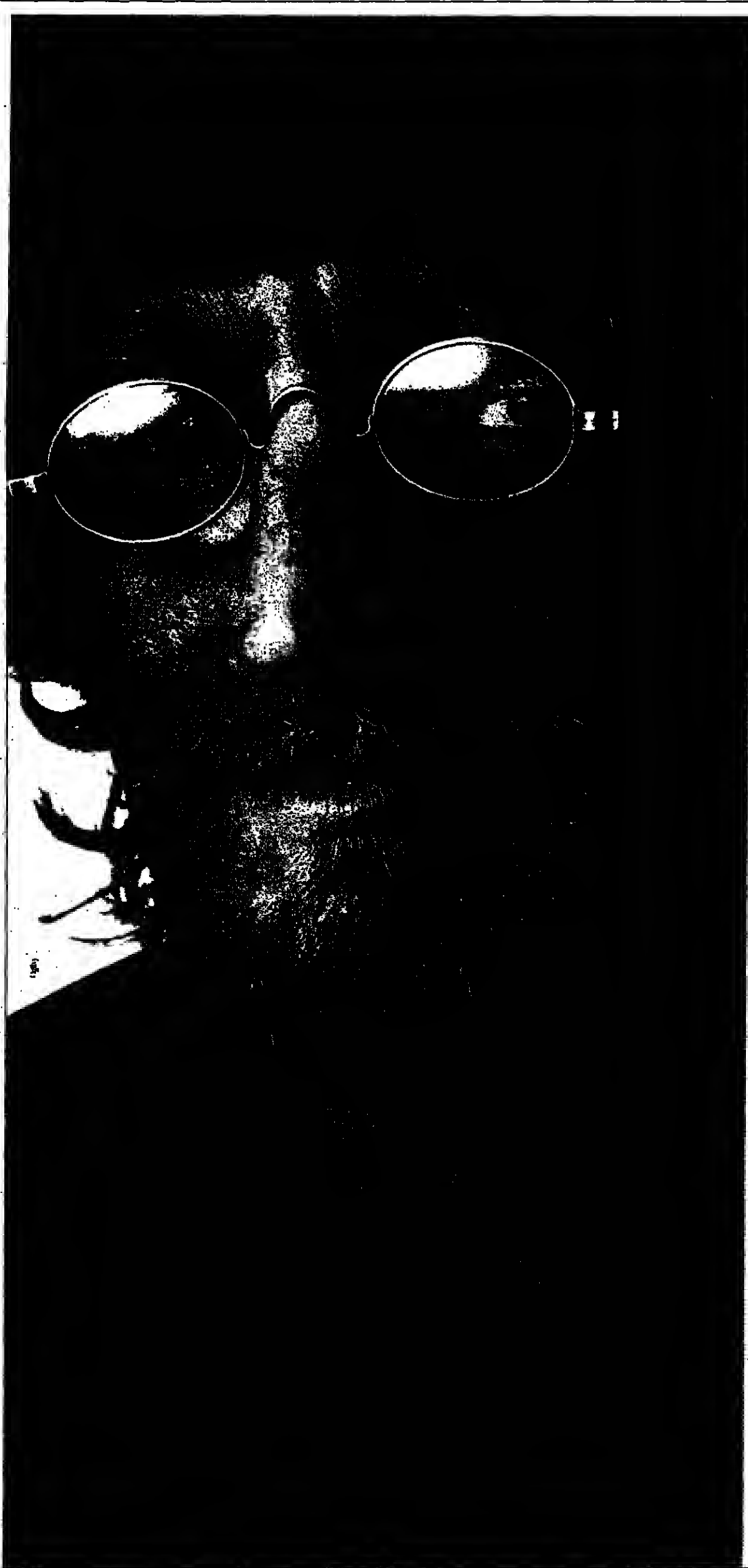
Far from escalating costs, Mr Mansfield explains that expenses are falling as security improves. Shell used to run a secure telex network that cost £4m in technology and required £200,000 a year to support 120 sites. This was superseded by a secure fax network costing £1m in systems, plus £100,000 in annual maintenance for 200 sites. The latest system will expand secure messaging beyond the fax network's remit.

But setting up this security system involved Shell in a long and involved process. Its chosen security software is subject to close scrutiny by the UK authorities, who worked with Shell to customise the program before it could be released for use overseas.

While Mr Mansfield is pleased that Shell's security system is so strong, it required an export licence and he echoes the concerns of EEMA's Mr James - "it's a cart and horse situation. Until governments agree on policy and relax some restrictions, industry won't be encouraged to development extreme standards of encryption".

There needs to be a broad European debate on this issue. Until this complex web of technical, legal and moral questions are resolved, secure commercial data networks will be operating under a cloud of uncertainty.

Michael Dempsey



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Converging technologies - electronic commerce

Case study: converging services

Host to the London Internet Exchange

When computers and communications are brought together in the same location, all sorts of synergies are created. Rod Newing reviews what happened in the London Telehouse

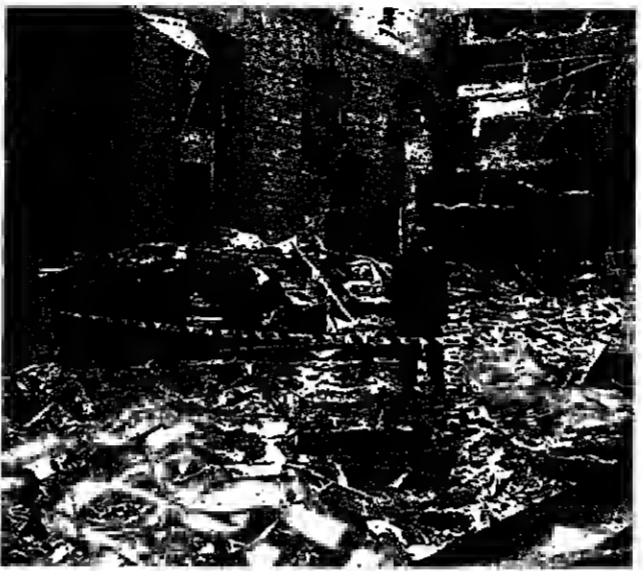
The London Telehouse was built in Docklands three years ago to provide a highly secure environment for city mainframe computers, as well as providing disaster recovery services. This impressive building - within two miles of Canary Wharf - has been designed to provide the highest possible level of protection against flood, fire, bombs and sabotage.

As Internet usage exploded, Pipex was soon joined in the Telehouse by more international telecom carriers, as well as other Internet providers. It is here that Pipex locate their WorldServer, a powerful Sun server which is one of the largest Internet servers in Europe.

The building design is ideal for this service. We want to locate all Internet providers and carriers in the same building to create an important gateway into Europe and the US. It will also provide a competitive environment of communications services where they and our other tenants can also feed off each other.

An interesting opportunity provided by the Telehouse was the creation of a UK interconnect point, the London Internet Exchange (LInx). It is a broadband fibre local area network between the 17 different Internet providers within the secure physical environment of the building, allowing them to share their capacity.

This is a major service to the Internet user-community, but it is only possible because their servers and equipment are located in a common neutral environment where they are treated equally, says Mr Still. Although they are a shareholder in the building, BT are treated at arm's length by the building managers.



Bomb damage in the City of London: financial institutions are acutely aware of the need for secure IT back-up facilities.



Blind proof: Telehouse (above) is a unique computing and telecoms building with state-of-the-art protection. The Telehouse FM service offers 24-hour supervision and supporting maintenance.

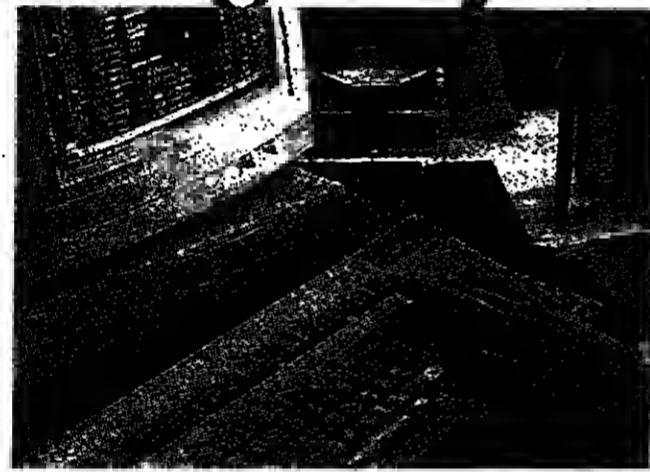


Banking applications - By Alison Smith

Still a long way to go

Banks seem more interested in evolution than in revolutionary developments

With millions of customers who include some technophobes, and systems that they cannot afford to go wrong, it is scarcely surprising that many banks are not at the cutting edge of information technology - although the financial world has long been one of the largest investors in automation.



Big question: as the Internet and other networks become more accepted as ways of transacting business, will the parties involved still need a bank to carry out the transaction?

The banks recognise the transformation IT has already made, both in banks' internal processes and in how they provide services to customers. They also acknowledge that further developments will bring about even more significant changes.

While much restructuring of banking processes has already taken place, some changes are still in progress. UK clearing banks, for example, are in the process of shifting to a new system in which the details of cheques can be read and transmitted electronically, and the cheques themselves do not have to be presented at the bank branch on which they are drawn.

Mr Steven de Loock, a senior executive in a new delivery channels at National Westminster Bank, believes that technological developments could transform the delivery of products and services. Alongside the commonly-held view that increasing use of the telephone and the prospect of providing services through customers' televisions and personal computers, he sees a role for the banks in providing information services to business customers, perhaps especially in developing these for smaller businesses.

Mr Gordon Pell, general manager of retail operations at the Lloyds TSB Group, says that the electronic transfer of information - "the electrification of the back office" - will contribute to the widely-expected shakeout in the banking sector, as thousands of low-skilled jobs disappear.

The 'virtual museum' becomes a reality

New London project shows how the Internet is helping to reshape the face of education and research



The new and the old: at the Science Museum, Alistair McLaurin with a laptop computer, showing Babbage's Engine on the Internet - and in the background the original machine, invented by Charles Babbage (1792-1871).

The museum is really one of three, which together with the National Railway Museum in York and the Museum of Photography, Film and Television in Bradford, make up the National Museum of Science and Industry. Each venue is computer-linked via an open systems network, installed by Data General, the hardware company largely responsible for the Science Museum's developments in cyberspace.

More than a third of the "virtual visitors" this year come from schools and educational centres. As more schools become connected, "the museum is faced with the challenging of expanding its traditional remit to a new and much wider community," says Mr McLaurin.

Within the London museum, 240 users can also surf the net and communicate via electronic mail. The aim is to increase these internal facilities to 400 Internet users this year. More than 300 groups visit the museum each day during term-time. Visitors can also take a "virtual side step" and visit galleries at other museums around the world.

Multimedia partnerships

Continued from Page 2: 2800m. But technology has a nasty habit of veering off in unexpected directions. De Benedetti's point about ATM is that it is merely an enabler, if a business concentrates too hard on the bits and bytes of one invention it might lose sight of the bigger picture.

De Benedetti claims Telemedia will be nimble enough to survive in this bewildering and unpredictable world. "In our industry it's certainly been the case in the past that leaders in one generation didn't stay at the top," he says. "The challenge is to maintain the momentum of change, and he has no illusions about that being easy."

His father once made a celebratory attack on Italy's Fiat dynasty, the Agnellis, declaring: "You can't be an industrialist and a playboy. It's inconsistent." Telemedia clearly takes its cue from an industrialist.

Directory of Internet service providers across Europe

Users and potential users of the Internet may wish to explore a CyberRoad map before starting their information superhighway journey, writes Marcia MacLeod. Developed by the European Electronic Messaging Association (EEMA), the CyberRoad maps create a directory to Internet service providers.

Big increase in the use of Lotus Notes

The use of Lotus Notes, IBM's unique groupware technology, will grow by 217 per cent in 1996, resulting in it being installed on 20 per cent of corporate desktops, writes Rod Newing. This is one of the findings from the fourth annual survey carried out by the Lotus Notes Users Europe, an independent user group.

Called "Year-X", the service explains what electronic commerce is and how to implement it, there is news on products, services, standards and associations; plus case studies and views from the industry and users. It also maintains a directory of companies providing an electronic commerce product or service.

Visitors to Year-X may also "hot link" - transfer to another site - to the home page recently opened by the Electronic Commerce Association, formerly the EDI Association. This offers information on the ECA plus details of forthcoming electronic commerce conferences.

Joint ventures

He appears wary of setting too much store by any one management strategy. But Telemedia is an example of De Benedetti's belief in "very focused centres of competence".

News in brief

Directors of Internet service providers across Europe. Users and potential users of the Internet may wish to explore a CyberRoad map before starting their information superhighway journey, writes Marcia MacLeod.

Value added network services - By Philip Manchester

Opportunities for innovators

The growing influence of the Internet is part of a deeper change in the Vans market

The inexorable rise of Internet communications is changing the face of value-added telecommunications. In the past, suppliers could add value to basic tele-communications in a number of ways - electronic mail (e-mail), electronic data interchange (EDI), directory services and so on.

However, when a new breed of value-added vendors came along offering Internet access, the so-called value-added network services (Vans) market changed.

Internet-based communications services are eating into the traditional Vans suppliers' revenue base - leading them to diversify. The e-mail market is the first area to feel the effect.

"You can already see the influence of the Internet on e-mail services," says Mrs Jolanda Goverts, editor of the Ovum news service, *Vans Markets Europe*. "Gateway access to the network is expected to generate the major growth in the next few years and the Internet will account for 25 per cent of it. Between now and 2000, we estimate an annual growth rate of 90 per cent for e-mail services through Internet gateways."

But it is not only traditional e-mail services which are anathema to Internet-based communications. Many kinds of transactions are being diverted from traditional communications services to the Internet. A recent report from Forrester Research expects Internet-based transactions to

double by 1997. It says that in the next year, three-quarters of Fortune 1000 companies are expected to move from the current use of the World Wide Web (WWW) - as an extension of the marketing department - to using it for real business.

This assumes a significant rise in Internet "transactions" other than conventional e-mail messages. Chiefly, the increase will come from electronic "orders" for goods and services and electronic payment by credit card or "digital cash."

But it is unlikely to have any impact on interbusiness electronic document interchange (EDI) - another key area for Vans suppliers.

At present, conventional Internet-based e-mail services are neither secure enough nor robust enough to carry this type of business transaction. This is reflected in Ovum's research: "There is no detectable influence on the EDI market because people don't see the Internet as being reliable enough yet. Businesses are sticking to X.400 connectivity because it is better technology. It gives message acknowledgements and so on," says Mrs Goverts.

The X.400 specification is an international standard for electronic mail which provides for secure and reliable transmissions of messages across a network. An X.400 gateway service gives businesses access to this as the foundation for secure business communications.

Gateway services are a traditional source of revenue for Vans suppliers. In the past, the bulk of the revenues have come from proprietary alternatives to X.400. But the balance is shifting. According to Ovum,



Meet Emily: an online 'agony aunt' who provides a sympathetic ear for members of Online UK which offers a range of programmes including newswire, hobby clubs, health and fitness features, sports reports and horoscopes. Family membership costs £14.99 a month

revenues from X.400 gateway services in Europe are expected to overtake revenues from proprietary services by 1999.

X.400 is expected to grow at 67 per cent a year up to 2000, says Mrs Goverts: "Vans suppliers are moving to X.400. BT in the UK, for example, provides Internet services. But although it is not promoting it, it recommends X.400 for commerce. It is also worth noting that Microsoft is geared to Internet, but it also provides X.400."

The growing influence of the Internet is also a part of a deeper change in the Vans market. Deregulation and

increased internationalisation of the telecoms market has made some market sectors unprofitable. Basic telecoms services, for example, are better provided by the large suppliers. "It is a defining moment for Vans suppliers. They can't compete on the basic network services - running networks is not where they can add value any more," says Mr Chris Gahan, a data solutions manager at BT.

"They have to move away from the plumbing and find ways to add value with things like project management and managing outside services like virtual private networks," he goes on.

Mr Clive Curtis, product manager at services supplier MFS Communications, agrees: "Our primary business is in supplying virtual private networks for business. Modern networking technology is complex and we have invested in the expertise to serve our customers. We see our potential in providing management services for networks - expanding outwards rather than upwards into the application-specific areas."

He goes on to say that MFS sees great potential in what he calls "total area networking": "There is a gradual evolution towards total area nets especially now we have got rid of the bottlenecks in the wide area networks with new technologies like frame relay," he says.

There is no doubt that the new communications technologies and advent of the Internet have shaken up the Vans market. But equally, there are still plenty of opportunities for those suppliers prepared to innovate.

Virtual private networks - By Philip Manchester

US companies are leading the way

Changing work patterns are a big incentive for companies to install VPNs

The convergence of computers and telecommunications has opened the door to new ways of communicating. Traditionally, telephone systems are 'hard-wired'; the functions they perform are built into the hardware. But with computerisation, modern telephone systems are, increasingly, 'soft'. They can, in fact, be 'intelligent'.

Modern features we take for granted - such as itemised billing and call-redirection - are possible because of the 'intelligence' of modern telecommunications.

Virtual Private Networks (VPN) are another example of the same phenomenon. Software technology allows telecoms suppliers to provide individual companies with their own private network, using the standard public switched network. This means, for example, that an incoming telephone call can be re-routed to another employee of the same company, regardless of geographic location.

Although the concept of private networks has been around for some time, they are generally based on dedicated, leased lines. VPN looks the same as a dedicated network to users but it is based on conventional public networks.

"Companies have two options for enterprise networking. They can go for a managed service-based on a dedicated network or they can go for VPN," says Mr Jeff Ace, director of IBM Global Networks.

"VPN has all the attributes you need for an enterprise network - but it allows you to go your own way with familiar a network and get the economies of scale which come from using the public switched telephone system," adds Mr Ace.

Managed network services have, of course, been around since the early 1970s. They have given large companies the ability to view their telephone networks as single resource - both for voice and data traffic.

Since the mid-1980s, when Sprint and AT&T launched the first VPN services in the US, a growing number of corporations have opted for the VPN approach. The result is that the US is the most mature market for VPN services. According to a recent report from market researcher Ovum, the US market for VPN services in 1995 was \$3.8bn.

Because of the maturity of the US market, only moderate growth is expected between now and 2000, when the market will be worth \$5.5bn.

The picture is very different outside of the US. Ovum puts the market in Europe and Asia-Pacific at \$10m last year, rising to \$7.5bn by 2000. There are several reasons for this growth: telecom companies want to cut costs and one way of doing this is to move their large corporate customers from dedicated networks to the public switched network.

At the same time, the technology, which makes VPN viable, has improved. "We are investing heavily in innovations such as frame relay technology which gives much greater and more flexible bandwidth," says Mr Ace of IBM.

This technology not only speeds up traffic on a network, it also allows traffic - specifically voice and data - to be mixed.

"Companies are going to VPN because they are looking to consolidate or expand their networking to meet changed work patterns. VPN covers both voice and data," Mr Ace explains.

Changing work patterns are another significant incentive for moving to VPN. "Businesses are recognising that they must become more customer-oriented. So activities

such as telemarketing and tele-sales are among the main change agents," says Mr Chris Gahan, data solutions manager at BT.

"In the 1980s, companies tended to rent private circuits. But now they are looking for different kinds of function from their networks and VPN offers a better option. Traditional telecommunications were inward-looking. Now it is important for companies to look outwards."

The type of network traffic that businesses need has changed, he adds. "The traditional operational systems that companies use are based on transaction-processing with predictable traffic levels. This suits the private circuit services. But companies today need more flexibility and a network to handle peaks and troughs. The private circuits just don't meet the need. VPN can share bandwidth and is better suited to the new environment where you need a blend of services."

VPN also offers other benefits. "The 'technology-churn' is still with us and companies want to protect themselves from change. At the same time, new skills are needed - as with any fast-moving technology. VPN can insulate companies from the need to keep up with the changes," says Mr Ace of IBM.

At BT, Mr Gahan also points out that VPN "allows companies to scale their networking needs up and down more easily and they can derive cost-benefits" from sharing a large telecoms resource. In many ways, VPN is a natural progression for business telecoms. Provision of networking services - whether for voice, data or a combination of both - is a utility and, therefore, not part of 'core' business activities. The nature of the global telecoms market means that prices will be competitive and it will make sense for many medium-to-large organisations to opt for VPN. For once, the interests of suppliers and customers are compatible.

Searching the Net - By Jola Shillingford

How the Internet boosts book sales

The slowest thing is the actual physical shipment of the books from source to customer

Forget thumbing through Yellow Pages to find *Fly Fishing* by its author, J R Hartley - a familiar, nostalgic theme in many television adverts for Yellow Pages in the UK. Today, the cool way to search for second-hand books is via the Internet.

No-one knows this better than Glyn Watson, whose bookfinding business has expanded since he went online a year ago. "The Internet is the friend of the printed word, not its death-knell," says Mr Watson.

His Shropshire-based business, Glyn's Booksearch, can only be reached by single-track road, yet he can search for out-of-print, second-hand and antiquarian books anywhere in the world.

In many ways he is a classic customer of the new breed of Internet professional. "I sit here, like the spider in the middle of a web," says Mr Watson. "I find books in North Carolina and having them shipped to Japan - all using electronic mail."

Sometimes Watson uses databases accessible via the Internet to search for books. Even when more traditional methods of book-searching are involved, electronic mail via the Internet (the global e-mail and information network) often plays a part.

"I may use an online database of over a million books located in the North West of America to find a book for a customer 20 miles from here," says Mr Watson. "Or I might use slower, though reliable, UK trade press advertising sources to find books for a customer in Australia."

"I collate a large and detailed list and e-mail it to her in seconds; so old and new mix seamlessly."

The Net helped Mr Watson find several volumes of British 19th century poetry, in sumptuous decorated bindings - for a UK customer. The volumes were scattered all over the US. Or he might buy books in the UK but send a quote by e-mail



The J R Hartley television advert: today, the Internet offers an alternative to the Yellow Pages for those searching for second-hand books

anywhere in the world. Mr Watson believes that those looking for out-of-print books now have a far greater chance of getting what they want simply because of the increasing number of Internet links among members of the second-hand book trade - with international frontiers being no object.

The slowest thing is the actual physical shipment of the books from source to customer. Even that can be overcome, Mr Watson recalls: "I had a call one afternoon from someone needing an obscure academic title within days."

"Minutes after he'd called - using online resources - I'd located one copy in a small Virginia bookstore. A phone call secured it and it was on its way by airmail - all within half an hour of the original request to me."

"With variations, that's not an exceptional story," adds Mr Watson. Credit and debit cards and electronic card readers simplify payment. The US is ahead in electronic book-selling, according to Mr Watson:

"Many booksellers which carry extensive stock and are essentially retailers (not book searchers) are in places so remote they make Shropshire look like Oxford Street." Some of these dealers trade

almost entirely online, venturing out to buy stock and to post the books sold. If they relied on retail trading, they would not exist.

"It's as easy for them to sell to me as to anyone else," says Mr Watson. "And it's as easy for me to buy from them as it is from someone down the road. Ultimately, this means that more people are getting more of the books they want, and that encourages further reading and book buying."

It can only be good news for J R Hartley and other, less mythical, writers. It is also good news for booksellers. "Every bookseller that I've spoken to who uses the technology reports increased sales," concludes Mr Watson.

For more information, see: <http://www.nlad-direct.co.uk/hglbook> or e-mail: glynbook@nlad-direct.co.uk

Second-hand books are also available from: the Internet Secondhand Bookshop on <http://www.cityscape.co.uk/users/jds36/>

Kenny's Bookshop sells new, second-hand and antiquarian books of Irish interest: <http://www.tol.ie/kenny>

Out-of-copyright books are available from Project Gutenberg on: <http://ftp.cso.uiuc.edu/pg/lists/list.html>

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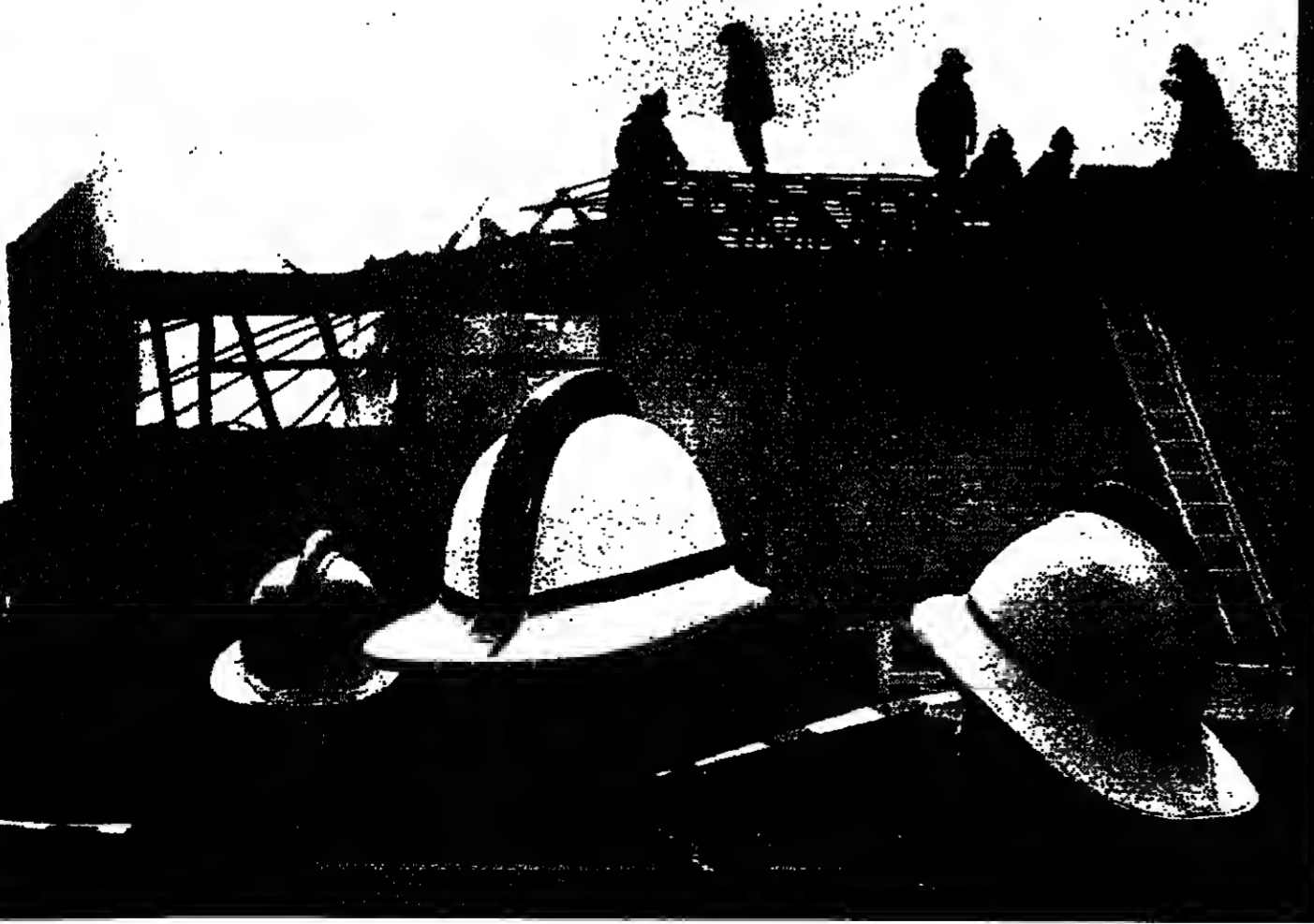
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Converging technologies - interactive services

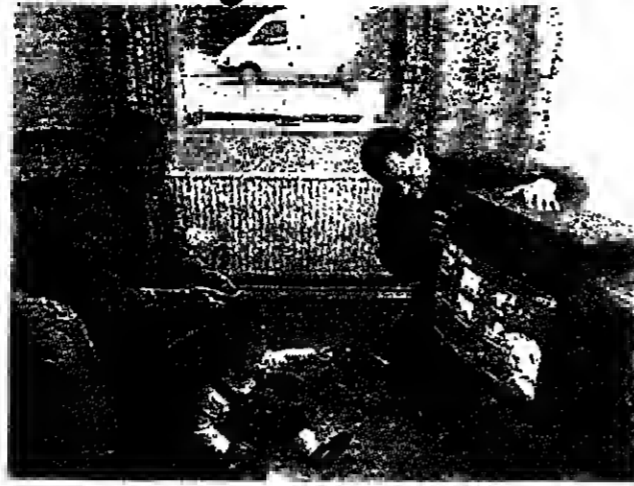
Video-on-demand - By Philip Manchester

More than 'Hollywood online'

The first lessons about 'Vod' services are being digested. Progress towards a world of interactive TV is under way

Video-on-demand (Vod) services are about instant access to the latest blockbuster cinema films through the telephone network. But although this is the first image to come to mind when Vod is mentioned, the service is about a great deal more than "Hollywood online". Reports on Vod trials in Europe and the US emphasise access to films in order to draw attention to their experiments. But behind the special set-top computer which delivers Vod to the home TV lies a vast and growing infrastructure. The experiment is as much about testing the technology which delivers the services as it is about finding out how people will use them. First of all, simple Vod is not likely to be a big money spinner for service suppliers. After royalty payments and the current high cost of delivery - together with the need to keep prices competitive - Vod alone is not economically viable. Video-on-demand, therefore, is only part of a range of what are being called interactive television services, (see also

Paul Taylor's report, below.) "You have to offer interaction with banking, shopping, games and information services, too," says Mr Andrew Creci, UK marketing director for Silicon Graphics, a leading manufacturer of video "server" computers. Trials all combine these services with Vod. The Cambridge Interactive TV trial in the UK is an example. It has brought together a group of specialist companies to create the infrastructure. ICL, the computer company, and Cambridgia Cable, a local cable TV company, Acorn Computers and others are supplying the infrastructure components. As with other trials, the infrastructure to deliver services is complex and expensive. Powerful video server computers are connected through a fibre optic cable network and advanced communications computers to the "set top" computers in the homes. The trial is supported by a group of services suppliers such as the BBC, Anglia, the local commercial TV company, NatWest Bank and the Tesco



Testing the technology and learning the lessons: BT's video-on-demand trial in Ipswich, using Sequant SE70 highway controllers.

supermarket chain. Between them they cover the complete range of interactive TV services.

Lessons are being learned from this and the other trials. Mr John Burton, telecommunications marketing manager at Sequant, the specialist US computer manufacturer, refers to advances in the infrastructure for delivering services, for example - "the vast majority of leading telecommunications companies throughout Europe and the rest of the world are

engrossed in trials at the moment. We are involved in the administration systems of three of the major ones and are learning how to make a commercial service out of these technologies," says Mr Burton. Sequant supplies what it calls "highway controllers" for interactive TV services. These systems handle the control and management of the services and work independently of the "video pump" - the computer which stores and delivers the moving pictures. Mr Burton

says that this is proving to be a workable model for delivering high quality services.

There are still some problems with the delivery technology but these are minor issues and it is moving forward quickly. The problems come when you scale up from the trial to a full-blown service.

"By separating the video pump from the interactive services we are able to scale the systems up to hundreds of thousands of users," he says.

Partnerships

Sequant is involved in three trials in partnership with the US software giant Oracle. In the UK, it is working with BT, in Germany with Deutsche Telekom, and in Italy, with Telecom Italia.

Mr Creci of Silicon Graphics also mentions the problems of scaling up trial systems:

"We are working on a trial with NTT in Japan with 400 people. But the plan is to convert tens of thousands and for large-scale deployment you have to take a different approach," he says.

Silicon Graphics chief executive Mr Ed McCracken recently criticised many trials for not paying attention to usability



A project by Video Graphics, one of the leading manufacturers of video 'server' computers. Trials indicate that although the technology problems are complex, they can be solved

and scalability. From its involvement with NTT and with Time Warner in the US, Silicon Graphics has learned that although the technology problems are complex, they can be solved. But it will be expensive.

"The work we are doing with Time Warner in Orlando is ten times too expensive, but we know we can make ten times the price in three years."

"Those companies that have not taken that kind of technology step and are trying to

implement systems today that are reasonably cost-effective are irrelevant. They are missing the point," comments Mr McCracken.

Silicon Graphics says it has also learned another valuable lesson from the trials. The quality of the service must at least equal that of present TV and video distribution channels:

"Our view is that content is king. You must be able to deliver the best quality service, which means you need the

bandwidth and expensive boxes.

"This is why it is expensive. But in four or five years' time, prices will come down and suppliers will have to rely on pushing high-quality services," notes Mr Creci.

The first lessons about Vod services are being digested by the various trial sponsors and progress towards a world of interactive TV is under way. It is still too soon to say, however, how the market will develop.

Development of interactive services

New signs of confidence

The digitisation of data is paving the way for a wide range of 'two-way' multimedia services, including interactive television, video-on-demand, home shopping and multimedia kiosks, writes Paul Taylor

Although the early take-up of interactive services in the US and elsewhere has failed to match some of the early over-optimistic predictions made at the start of the 1990s, most analysts agree that interactive media will eventually be a big and dynamic consumer market.

"The evolution of interactive media in the home is likely to take place slowly - over the next 10 to 15 years and beyond, but the impact on our lives is expected to be dramatic," note the authors of a report on interactive mass media, prepared recently by the London Business School.

Among the other conclusions, the LBS study suggests:

- Information and entertainment, especially video games, are seen as the drivers of adoption for interactive media. Marketing communications (advertising) and transactions (home shopping and banking) will follow, and may eventually become the main commercial use of interactive mass media.
- The use of interactive technology at work accelerates the adoption of new technology in the home.
- Early use of interactive media in the home will mainly be through the PC, rather than television.
- A switched broadband cable "information superhighway" into individual homes may well not be cost-justified, except in the very long term as older wiring needs to be replaced.

Much of the interest in interactive services has focused on interactive television and video-on-demand, one of the services which interactive TV can deliver. Last year, Ovum, the UK-based technology consultancy, estimated that at least 50 trials had been completed or were under way.

Two main technologies are being employed in the trials with the choice largely reflecting the existing infrastructure and the background of the network operator. Where the network is largely fibre-optic cable or a mixture of fibre and coaxial cable, ATM (asynchronous transmission mode) has emerged as the favoured option. However, ADSL has proved to be a viable alternative, particularly for the local telephone companies where the infrastructure is mainly copper wire. In some cases ATM and ADSL have both been used.

In Europe, trials have included Online Media's ongoing Cambridge Interactive TV trial which is delivering a wide range of interactive services including video-on-demand, home banking, home shopping, local information, games, educational material and news.

In the US, a number of interactive TV services have moved from the trial stage into commercial deployment. Among these Time Warner has launched a service in Orlando, Florida, Southwestern Bell is deploying a large network in

Texas and Bell Atlantic has launched a 384-channel service in Dover Township, New Jersey. The Bell Atlantic service, like several of the trials, uses BroadBand Technologies ATM-based FLX switched-digital video technology. The company claims the response to the service has been "extremely positive," Mr Salim Bhatia, BroadBand's chief executive, says: "We know that people want these services, and now we know that they are willing to pay for them."

But despite this upbeat outlook, some studies have suggested that consumers are unwilling to pay the subscriptions necessary to justify the hefty investment required to build an interactive network. In particular, some trials have suggested that consumers are only willing to pay a small premium over video-rental costs for video-on-demand. Some analysts suggest that "near video-on-demand" - where films and other programmes are shown continuously on a large number of channels throughout the day so the consumer has to wait only a short time, perhaps 10 minutes, until their chosen programme starts - may provide a more viable lower-cost alternative.

However, observers such as Kris Naeve who is in charge of BroadBand's European Operations, argue that consumers have yet to see the full range and quality of services which will be available over ATM-based services. Neither is he worried by the prospect of new competition for interactive services from other delivery systems, including digital satellite the Internet.

Recently, a number of companies have announced plans to provide World Wide Web accessed television over the Internet, offering the prospect of widely-available cut-priced programming. Indeed, the recent rapid growth of online services and the World Wide Web, in particular, has encouraged many of interactive TV's early proponents to shift their focus to the growth of online services and the Internet.

Among the Internet "virtual shopping" arcades, established over the past year, is Barclays Square, launched by Barclays Bank and Jersey-based SuperNet whose early "tenants" include Sainsbury's, ToysRus and Argos. Similar secure electronic shopping malls include the Internet Shopping Mall and CUC International.

Meanwhile, a growing number of merchants on both sides of the Atlantic, ranging from retailers to financial services firms, stockbrokers and employment agencies have set up their own interactive Web pages. Many sites began as experimental or pilot schemes, but this is changing fast as confidence grows in the security of the Internet for business, and a second generation of Web sites provide real opportunities for electronic commerce, interactive shopping and information services.

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Multimedia in banking - By Marcia MacLeod

Positive feedback from trial

A growing number of banks is beginning to explore the possible benefits

If a visit to the bank manager still seems more akin to a meeting with the devil than a supplier-client partnership...



Pioneering new technologies in banking and insurance: National Westminster is developing new multimedia services for customers

National Westminster was the first of the big clearers to take advantage of the retail opportunities being presented by new technology when it launched a videoconferencing customer interface in July 1994.

Remote Access to Expertise, went live in 10 branches in the Birmingham-Bedford-Milton Keynes area to enable customers to use the videoconferencing system to obtain information on the NatWest Home Protector package of building and home contents insurance.

with the rest of the screen displaying information on insurance, such as cover and premium. Details keyed in in Bristol - type of insurance, sum insured, etc - were supplied by the customer using the videoconferencing system.

Positive feedback led NatWest to launch further videoconferencing projects. A foreign advice link was opened between a Southampton branch and an international banking centre in the town in February 1995...

Once shown how to use the system, customers called up NatWest Insurance Services in Bristol to connect to one of eight trained experts...

services, such as insurance and finance.

Three sites in Slough and three in Nottingham are split between Camden dealerships and shopping malls.

On January 8, Barclay's launched "BarclayZone" in three branches - Fenchurch Street, Crawley and Maidstone - to offer details on investment and savings products.

Customers who wish to transact a deal can then make a live video link to Barclay's Stockbrokers in Glasgow to complete the transaction...

Other banks are beginning to explore multimedia technology. Last October, Lloyds, for example, launched two LloydsPoint kiosks at the University of Sussex and Derby University...

The Sussex LloydsPoint is located next to a cash point and is open 24 hours; the Derby kiosk is sited inside the Student Union...

Students are using the kiosk to obtain information about student packages, plastic cards, travel services and other products. They use the video link to check balances, transfer money between accounts...

Home banking - By Alison Smith

Consumer interest is rising

Almost one in four people think they will be using home banking within two to five years

Neither bankers nor technology experts doubt that within a few years the systems will be in place to allow just about all personal customers to run their current accounts and buy complex financial products from the comfort of their own sitting rooms.

Mr John Sturgeon, business development manager for customer banking at ICL, says that the UK is more advanced in using technology for home banking than is continental Europe...

While the proportion of US customers banking by PC is still in fractions of 1 per cent, the American Banking Association expects online banking to be offered by more than 40 per cent of banks with assets of more than \$1bn by 1997...

Mr Steven de Looze, a senior executive in delivery channels at National Westminster Bank, Britain's biggest bank, believes the shift away from branch banking will continue...

Broadcasting and cable - By Raymond Snoddy

Saturation point looms

Special information channels or printed television programme guides will help alleviate the dangers of something akin to entertainment overload

The increasing abundance of new media and information provided by the emerging digital technologies is causing fresh kinds of problems, according to a research report by SRI International...

In its latest study of the new media world, SRI warns that television is going the way of business computing, which has already seen a shift from the days when data was a precious resource to the current "information overload"...



Cable laying in the UK: intensive research programmes in interactive services are now under way by the leading cable companies

Future viewers faced with hundreds of television channels are going to need reliable "context providers" to help them make sense of the vast number of options.

Special information channels or printed television programme guides will help alleviate the dangers of something akin to entertainment overload.

Existing broadcasters can use their established name to launch new channels. In the US, the sports channel ESPN has launched ESPN 2 while, in the UK, one of the most famous names in British commercial television announced in December it would launch a raft of new channels...

Mr Sam Chisholm, the BSkyB chief executive, believes that the best way to keep the number of subscribers rising is to continue to add new programme services.

spread to cable networks in Bristol. The Mirror Group is offering Live TV, a round-the-clock entertainment channel carried on cable networks in London and Birmingham...

In the UK, British Sky Broadcasting, the satellite company controlled by Mr Rupert Murdoch, is now capitalised at more than \$8.7bn.

Even in the UK, new channels are being created all the time. Last autumn, BSkyB added no less than seven new programme services including the Playboy Channel, the Sci-Fi Channel and the Disney Channel.

Mr Sam Chisholm, the BSkyB chief executive, believes that the best way to keep the number of subscribers rising is to continue to add new programme services.

At the moment BT is also conducting commercial trials on the possibility of providing digital information and entertainment-on-demand down existing telephones.

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What IT developments are taking place in your industry?

Advertisement for FT (Financial Times) newsletters and management reports. It lists three reports: 'Electronic Data Interchange in the Automotive Industry', 'Improving Retail Efficiency through EDI', and 'The Impact of Technology in the Travel Industry'.

Advertisement for the European Information Technology Observatory (EITO) 1996. It offers a copy of the EITO's new edition, which is the 4th edition of the unique and indispensable yearbook.

Advertisement for MR Micro-Rent plc, featuring a 'RIGHT NOW' call to action and details about their equipment rental services.

Large vertical advertisement on the right edge of the page, partially cut off. It features the text 'Converging technologies' and 'In under...'.

Network-centric computing - By Tom Foremski

An under-pinning for business

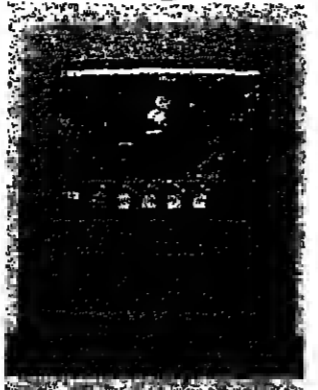
US company 3Com believes it can transfer some of the benefits of using networks to the small office and even the home

Whenever users need to gain access to information and to contact colleagues in order to get their work done - whether they work in offices or at home - network-centric computing has come to the fore. At its extreme, network-centric computing is leading to the development of cheap computing devices that are designed to connect to the Internet and have no local data storage. The idea of a standalone computer is also beginning to disappear in the small office and home environment. This is a trend that networking company 3Com, among others, recognises and is addressing with the recent launch of its low cost Office Connect hub product. The original purpose of networks was to share office printers and occasionally transfer files between workers, but they are now a key element in the way businesses conduct their operations. Networks have become the foundation for client-server computing, for desk-

top videoconferencing; for pulling together the efforts of groups of workers scattered around the globe through products such as Lotus Notes; and they offer the means for collecting and distributing knowledge within an organisation. As staff find themselves working from home and from remote locations, they want the same network access they are used to in the office.

"A lot more people are working from home, whether it is telecommuting or simply putting in an extra few hours when they get home. And they want quick access to the company network. The trouble is that 28.8 modems are too slow, they take too long to connect," says Ken Baynton, managing director of BSN Ltd, a company specialising in linking networks. ISDN lines offer a better solution. "With ISDN, it takes just a second or two to make the connection and it is much faster than modems," says Mr Baynton. He points out that although ISDN provides quick network access, there is a perception that it is still too expensive - even though users typically pay only for the time accessing the network, unlike with modems where the telephone line is open for as long as the user is logged on.

The US company 3Com believes it can transfer some of the benefits of using networks



The PC turns into the PCTV - see also report on page 15

to the small office and even the home. "It has always been expensive to network a small office. Some companies have found that if they have a small office, it is cheaper to connect users to the central office rather than install a local area network. We have developed a new hub product that makes it much easier and cheaper to connect small groups of people," says Bob Cushing, European marketing director at 3Com.

3Com's Office Connect product handles the wiring connections between PC users and office peripherals such as faxes and printers, and outside com-

munications. The device has been designed to be simple to use and install. 3Com believes that there is a large market in networking small offices, and as homes add more PCs, there is a vast potential market in networking home computers.

However, unlike the larger and complicated corporate networks, the key to networking the small office and home is to keep things as simple as possible. "The idea we are working towards is that the network gives people access to what they want, whether it is the Internet or the company network. We are in the business of providing the plumbing, making sure that when the computer user turns the tap, they get what they want," Mr Cushing adds. "It is important that the network access be as transparent as possible."

With Office Connect, 3Com carefully hid the complexity of the system, allowing customers to simply plug it into a wall socket and have an "instant" network. Other companies, such as Compaq Computer and Novell, are also targeting the small office and home market. Compaq is planning a series of low-priced networking prod-

ucts that can link home PCs and other home-based systems such as lighting, heating and security systems.

Novell, with its Nest technology, aims to extend its Netware networking system to controlling home-based electronic systems within cars. Nest relies on embedding special chips into a wide range of electronic devices and controlling their operation through standard power lines. At IBM, the idea of networking has been built into everything the computer giant does. "We have a networking division, but every division of IBM considers networking, and the demands of networking, into their product plans," says Kevin Bishop, European and Middle East marketing manager at IBM Networking Products.

Mr Bishop points out that different types of networks are good for different tasks. For example, the Internet offers global access to a wide variety of information and communications but it is not suitable for networking applications that demand a fast response. IBM is trying to make sure that different types of networks can still communicate with each other.

Cable data communications - By Geoffrey Wheelwright

Faster access to online services

New facility offers 'multimedia the way it's meant to be - immediate, easy and fun'

The merging of telecommunications and cable television interests is spawning not only increased competition in many businesses, but also helping to create new enterprises and services. One of these is the provision of telephony-style services using the cable television infrastructure, commonly dubbed "cable telephony". Not only are cable TV companies flocking to the business of providing traditional voice communications using their infrastructure, but many are making a big push for access to the worldwide Internet computer network (and its popular World Wide Web service), using high-speed cable TV lines. In Canada, for example, the domestic cable television giant Rogers CableSystems is testing

a new service it calls Rogers Wave for Home. The service, announced in Newmarket, Ontario, last November, claims to offer "the fastest, most powerful access to a suite of online content, including the Internet".

For C\$39.95 a month, consumers in this trial area use their PC and a cable connection to gain very high-speed access to the Internet and the World Wide Web. "We've integrated breakthrough technology with Rogers' newly-upgraded two-way, fibre-coaxial broadband cable network to develop Rogers Wave," explains Colin D. Watson, president of Rogers CableSystems. "The service works at breakneck speed. A video clip that would normally take many minutes to download with a common telephone modem, takes only seconds with Rogers Wave," he says. "Now people can enjoy multimedia the way it's meant to be - immediate, easy and fun." The service uses a 500,000 bits per second "cable modem",

a specially-designed modem engineered for use with cable television networks, which is almost 20 times faster than the standard 28,800 bits per second telephone modem. Rogers also points out that with a cable modem, there is no "busy" signal, no dial-up - and no worry about tying-up the phone line when you are surfing in cyberspace.

The speed advantages are not universal, however. The performance of Rogers cable modems is dependent on how information providers configure their World Wide Web sites. For this reason, the company has a program to encourage them to take advantage of the technology. "Through its Rogers Wave Greenhouse Program, the company is encouraging the development of new content that takes advantage of the large bandwidth Rogers Wave offers," says Watson. "For instance, Lifeline, Toronto Life magazine's online publication, as well as many other organ-

Continued on next page

Digital broadcasting

The key challenge is price

The cost of digital television sets will come down in price as new chips are developed

Digital broadcasting is beginning to make a big impact on the production and distribution of television programmes but its journey into the home will take several years, following the development of cheaper digital TVs and digital TV decoding boxes. Digital broadcasting technology involves the production and distribution of video images in a digital rather than analog form. The advantage of the digital format is that the quality of the original work is preserved throughout the production and distribution process. With normal analog video, there is a certain amount of picture degradation that occurs at every step of the distribution chain. In the US, digital TV broadcasts are available through services such as DirectTV's digital satellite transmissions. But the future of digital broadcasts is closely linked to the future of interactive TV and high definition TV (HDTV).

The US Federal Communications Commission has approved a digital HDTV standard proposed by an alliance of leading electronics companies but there are still some details to be determined such as how to handle the transition from analog to digital TVs. With more than 300m analogue TV sets in use in the US, the FCC wants broadcasters to offer both analog and digital transmissions while the transition to full digital broadcasts takes place.

Comparisons

Although the technology for receiving digital broadcasts is available, the key challenge is price. "The biggest issue is not one of distribution or government regulations, it's at the end user - providing the means to view digital broadcasts," says Reza Jafari, vice-president of the entertainment and broadcasting division of Electronic Data Systems (EDS). "I can produce and distribute content digitally, but there is virtually no audience. The cost of digital TV reception has to come down in price." Consumers would have to pay as much as \$6,000 for a digital TV or \$500 for a digital radio. These costs are far too high compared with analogue TVs that can cost as little as \$200. "These are tough economics to beat," points out Mr Jafari. The cost of digital TVs will come down in price as new chips are developed and as the manufacturing economies of scale begin to take effect. But there is an additional problem

in offering digital TV services that consumers want.

Clearer pictures are not enough to persuade consumers to pay more for digital TV broadcasts. The goal is to be able to offer consumers a wide range of services. These could include custom TV programming, interactive TV, and increased choices of TV channels and programmes. There have been several US pilot projects testing various interactive TV services, conducted by leading TV cable and communications companies, but the tests have so far proved disappointing. Consumers taking part in the trials gave a mixed reception to the services offered and many said that they would not pay much more than they currently spent on cable TV and video rentals.

"The problem with many of these trials is that they were too small, so that even if they were successful, it would be difficult to extrapolate those results to the general population," says Mr Jafari. "The trouble is that no one really knows what types of digital TV services consumers want."

There is also uncertainty over what the best transmission medium will be to deliver digital broadcasts. Fibre optic lines to homes would be the best solution but the cost of laying the lines is very high. Existing coaxial cable-based cable TV lines offer a cheaper solution but presents some big technical challenges. Wireless broadcasting is a cheaper solution but, again, the challenge will be to customise services to the viewer.

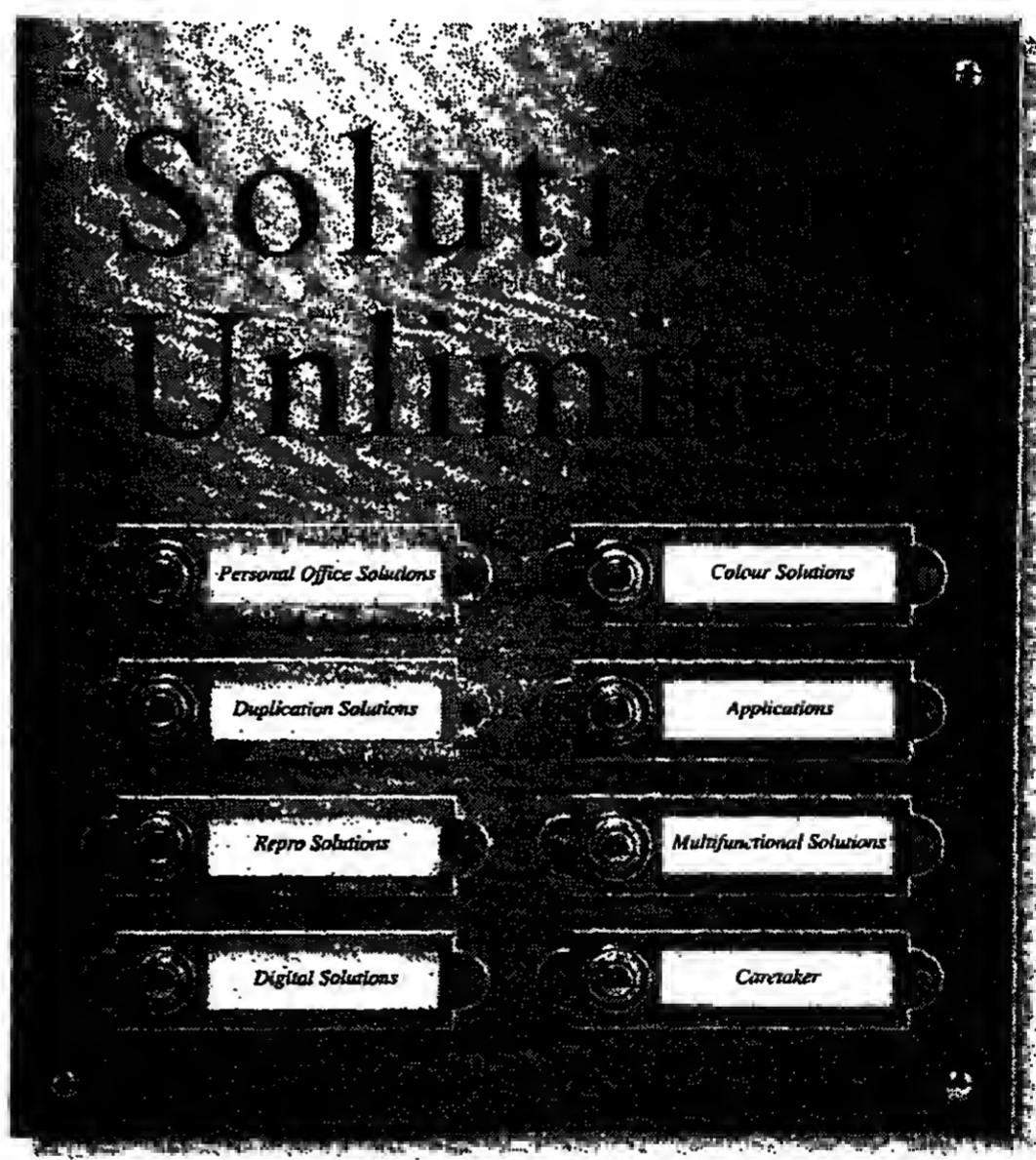
The huge rise in the use of the Internet brings a further option. Although the bandwidth of the Internet is very small, over the next 10 years it will grow to accommodate large files, such as digital TV broadcasts, turning it into a viable distribution channel for digital broadcasts.

While the industry tries to solve the problem of digital broadcast reception, the use of digital production and distribution promises to cut costs and improve the production process. EDS is among several companies that offer hardware and software products for the production and management of digital video content which is then converted to analogue form for broadcast.

"It is often very difficult to find video clips and it can often be quicker to send out a TV crew to re-interview a person rather than search a library for the right clip. With digital content, it is much easier and quicker to find the right clip," says Mr Jafari. Producers can also resell parts of their content to other producers, which will help bring down the overall costs of producing digital video content.

Tom Foremski

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Converging technologies - electronic publishing and the electronic office

Electronic publishing

Challenge of the new systems

The worldwide publishing industry is now at the centre of a digital revolution, writes Paul Taylor

New delivery mechanisms in electronic publishing - such as CD-Roms, online services and the Internet - represent both a challenge and an opportunity for traditional publishers.

Today, many encyclopedias and other reference works are available in CD-Rom format or online. Academic studies and research papers are often published on the Internet before they find their way into print and at last count at least 800 newspapers around the globe had established an Internet or online presence.

With about 50m CD-Rom drives installed worldwide by the end of last year - a figure projected to rise to more than 100m by the end of the decade - CD-Rom publishing is now a well established and profitable business model for both traditional publishers and database vendors.

CD-Rom publishers include print publishers of reference materials who have diversified into CD-Rom publishing, such as Reed which already publishes back copies of New Scientist on CD-Rom and other publishers such as Spain's El Periodico newspaper group which produce CD-Roms containing news and information for local school use. Others which have embraced the CD-Rom publishing market enthusiastically include consumer publishers such as Dorling Kindersley.

For example, in the wake of Microsoft's success with its interactive Encarta multimedia encyclopedia, most contemporary reference works - and many older publications including the complete works of William Shakespeare - are now available in CD-Rom format, fully exploiting the large 600Mb capacity of the medium.

Other advantages include the powerful cross-referencing and search tools that can be used and the ability to incorporate music, sound and video along with text and graphics.

One of the problems of publishing contemporary reference works on CD-Rom is that, like their hard-bound counterparts, they date quickly. One possible solution is to build a "multiple media" product which links standalone software with the Internet or an online service enabling the incorporation of up-to-date information.

Dorling Kindersley is among those publishers experimenting with this approach and is currently working on ways of integrating Internet functionality into its CD-Rom's content and access to online "clubs" or bulletin boards. "We believe that 'hybrid media' and 'media packages' or 'multiple media' have a bright future," says Andrea Kirkby of Dow Jones's Institute of Research.

Meanwhile newspaper publishers are also beginning to face up to the implications of the new digital media world. Changing social habits and emerging new technologies mean that newspaper readership has been in decline for a number of years in the west - the total newspaper circulation

is declining by between one and two per cent a year in Britain. Younger readers in particular seem to be turning to new media for their information and entertainment. As a result, the newspaper industry has been investing heavily in media such as television and multimedia such as CD-Roms and Internet publishing. A year ago, about 60 US newspapers had some form of electronic edition but Steve Outing, new media consultant and author of the Online Newspaper Report for Jupiter Communications, estimates that there could be as many as 2,000 newspaper products online within the next 18 months.

Electronic publishing offers publishers a new way of reaching their readers, rather than substitute for its paper-based edition - hedging against the risk of cannibalising their paper readership.

But despite the Mercury Center's success, a single blueprint for electronic newspaper publishing seems unlikely. Many other newspapers and magazines have chosen to publish the contents of their existing paper edition either partially or in its entirety.

Similarly, there is a lively debate over whether electronic newspapers should attempt to mimic the broadcast quality and "browsability" of their paper-based counterparts, or deliver a more targeted or personalised version of the news. The second approach has been championed by Nicholas Negroponte, director of the Media Lab at the Massachusetts Institute of Technology, who supports the concept of the "Daily Me" where the reader pre-selects individual areas of interest to make up the content of their own personalised electronic "newspaper".

Meanwhile other publishers have been experimenting with different delivery systems although Knight-Ridder's so-called Tablet - or portable flat panel display concept - was abandoned last year. However, it is still early days for electronic publishers, most of whom have yet to work out what content their audiences want to consume electronically, what form of advertising content is appropriate to the new medium and how much consumers will be willing to pay.

What most analysts do agree upon, however, is that the new medium is likely to complement rather than replace print, even though electronic publishing looks set to increase its share of the market over time. "Digitalisation of content will not only allow enhanced interactivity, but will allow content to be shared between media," says Daiwa's Kirkby.

Electronic newspapers - By Stephen McGookin

Publishers explore fresh online opportunities

About 800 newspapers are available online and more are being developed

When San Francisco's two leading daily papers, the *Examiner* and the *Chronicle* were shut down by strike action in 1994, their electronic offspring rapidly appeared on the Internet.

The following year, when the *Detroit Free Press* was off the streets, an online version of the paper was already available through a commercial service.

The incredible growth in the number of home-based personal computers over the past decade and the increasing sophistication of online services and the Net has led to newspaper companies exploring more seriously - and not just as a defensive strategy - the idea of electronic publishing.

The result is that there are now about 800 newspapers available online, with more in various stages of development.

Steve Outing, new media consultant and author of the Online Newspaper Report for Jupiter Communications, has guessed that there could be as many as 2,000 newspaper products online within the next 18 months.

One point that Outing emphasises is that the landscape in this sector changes extremely rapidly, something that is apparent from the frequent additions to both Outing's site through Editor & Publisher magazine (www.editorandpublisher.com) and Eric Meyer's Newslink (www.newslink.org), which are collated listings and links to newspaper and magazine products around the world.

Over the past two decades, the idea of newspapers delivering their information products to the reader electronically rather than on paper has been frequently explored in one form or another - whether that be through a conventional screen-based model or by a more fanciful route such as Virtual Reality glasses.

Pioneering research at the Media Lab at the Massachusetts Institute of Technology, under Nicholas Negroponte, its director, has helped push the debate within the industry, envisioning such developments as the "Daily Me", where the



Staff in the electronic publishing division at the Financial Times check the new London shareprice service on the Internet. The address is: <http://www.ft.com>

reader specifies individual areas of interest that make up the content of his or her "newspaper". (See also the interview with Nicholas Negroponte on page two of this IT Review)

The so-called Tablet - or portable flat panel - concept developed by Knight-Ridder's Roger Fidler was an attempt to marry reader-driven choice in content with greater reader freedom through a portable delivery system.

It was abandoned last year by Knight-Ridder although Fidler continues to develop the Tablet in his research at the University of Colorado.

Database products

Commercial database products such as Lexis-Nexis, Dialog or the FT's own Profile service, provide searchable full-text versions of newspapers, but again, these are intended for the non-home user in a business environment, as their premium pricing attests.

Web-based novelties such as Dave Maher and Jeff Boiliter's Crayon - Create Your Own Newspaper (<http://crayon.net>) - allows the user to choose from a menu of categorised sources, then to compile the material into a menu of stories.

Newspapers which decided to put themselves online basically had two options: they could publish on the Internet, or they could enter into a partnership arrangement with one

of the large commercial online services such as America Online, Prodigy, or CompuServe. They could, of course, do both, and many did.

Taking advantage of its high-tech reader profile, Knight-Ridder's San Jose Mercury News was among the pioneers in electronic newspapers. Its Mercury Center web site (www.mercury.com) was an example of how to produce lively, interesting content designed to attract the crucial regular readers who would provide the high number of "hits" advertisers were looking for. Not surprisingly, it soon moved from a free service to a subscription base.

The new medium also allowed publishers of hard-copy titles to extend their branding by producing parallel products which take on a life of their own - and not simply "shovelware" editions containing the same, or less, content than the paper product.

One of the best such examples is HotWired (www.hotwired.com), the Net version of Wired magazine. More recently, The Guardian newspaper in the UK (<http://go2.guardian.co.uk>) has developed a magazine-style web format which complements, rather than replaces, the hard copy product.

The most successful online newspaper in the UK has been the Electronic Telegraph (www.telegraph.co.uk) which since its launch in November 1994 has built a considerable

virtual readership, including a good many British expatriates.

It recently introduced an online version of the popular Fantasy Football game - an example of how added value content can expand the paper's audience away from that traditionally associated with the paper product.

Contentants pay a £10 (\$15) fee to take part, having first registered with the Electronic Telegraph access system and provided useful demographic information for the database marketing folks. According to Pippa Little of the Telegraph, the paper has been "overwhelmed" by the response to the new online game.

Like all publishing ventures, the more you know your audience, the greater your chance of success.

It seems likely, therefore, that newspaper publishers across the globe will spend the best part of the next year trying to find out whether their audiences want to consume their product electronically; how much they are prepared to invest in doing so - not necessarily in subscription fees but in time and participation - and whether advertisers can be persuaded to build on their initial encouraging interest in the interactive medium.

Stephen McGookin will report on the latest developments in Electronic Newspapers in the 'A-Z of the Internet', an FT:IT magazine due to be published next month.

CoBIT 96: trade fair preview

6,000 exhibitors head for Hanover

More than 6,000 exhibitors from 60 countries will be taking part in the largest-ever CoBIT show at Hanover, Germany - the annual office, information and telecommunications trade fair which takes place this year from March 14 to 20, writes Michael Wilshire.

More than 1,500 exhibitors - a record - will take part in IT categories which will fill seven large halls.

In the network category, there will be 450 exhibitors, many of them highlighted in special displays such as News Net 96, ATM World and the Networking Centre.

More than 2,000 exhibitors will be featured in the Software Centre. Other large areas will focus on banking and financial systems, com-

puter-integrated manufacturing and design, consulting and services, security equipment and card technology, plus a wide range of business and office systems.

The event, which will be open daily from 9am to 6pm, has also attracted a record number of UK exhibitors - 328 compared with 286 at last year's event. "CoBIT is clearly the place to be this year if you are in the IT industry," says Mr Arnold Rüstemeier, general manager in the UK for the show organiser, Deutsche Messe.

Last year's show attracted more than 755,000 visitors of whom 104,000 were from outside Germany.

For more details, telephone Hanover (0511 893 80 11/12; fax (0511) 893 80 03.

The electronic office

Drowning in a sea of documents

'Too much executive time is spent at the photocopier'

Most offices today "are awash in a sea of documents - both digital and paper," says Russell Peacock, general manager of Rank Xerox office document products.

Ten years ago, the average number of documents handled by a worker was less than 30 fax/print/copy pages a day. By the end of this year, it will be 70 a day (including digital documents) predicts Xerox.

But Mr Peacock believes so-called "knowledge workers" do not have adequate control over the three stages of document production:

- Document input - the creation, scanning or electronic capture of information.
- Document management - the ability to store, retrieve, summarise, share and manipulate content.
- Document output - local or distributed printing, copying, faxing and viewing.

In most offices, personal computer-users depend on an eclectic mix of devices, some of which - copiers, fax machines, scanners - are not even on the network. So they spend time "walking" documents from slow laser printers to faster copiers.

This creates bottlenecks in key processes and low productivity. To put it another way - too much executive time is spent at the photocopier.

Xerox has a strategy for dealing with this. It has just launched two Document Centres which can be connected to networks. These enable users to print, fax or copy documents from a PC.

An added benefit is that users can deal with paper and digital information in an integrated way. For example, paper pages can be scanned into a Document Centre and combined with digital data to produce multiple copies of a finished, stapled report.

The Document Centre System 20 - for networks of 20 users - costs £13,660. The System 35 for groups of up to 60 costs £27,280.

Rank Xerox believes that the business of bringing office services to the desktop will be worth \$1bn by the year 2000.

Just-in-time hotelling

But with growing use of mobiles, satellite networks, Internet e-mail and portable PCs, will anyone be working in the office of the future?

Probably - a halfway house is "hot-desking", where users spend a lot of time out of the office but are allocated desks as and when they need them. Andersen Consulting - no stranger to the practice of "hot-desking" - is using what it calls "just-in-time hotelling" in its Paris offices.

When employees arrive, they check in by swiping a smart card through an interactive station. They then know which room has been allocated to them and can be tracked down easily by reception staff. Once in their allocated room, employees have access to Octel voice mail and Lotus Notes electronic mail.

Andersen Consulting says its consultants can book space in the office as if they were booking a hotel. There is even a first-class style lounge containing smaller workspaces, and comfortable couches for chatting with colleagues.

The lounge area does not have to be booked, but lounge lizard's warned: Andersen's launch information says the lounge "enables everyone to relax for short periods of time" while waiting for a meeting, filling in a time-sheet - not everyone's idea of relaxation - or picking up messages.

Whatever the office of the future looks like, it won't mean shorter hours.

Integrated document management

The company is certainly not alone in believing that users want to be able to manage their documents in a more integrated way. Other suppliers are busy forming alliances, or taking over companies so that they can sell a wider range of products for the electronic office.

US-based image processing supplier, FileNet, has agreed to acquire Savas, a US company specialising in document management and Internet web-server software. Last year it acquired Watermark, which sells desktop image processing and workflow software. It has also entered into an agreement with network company Novell which integrates FileNet's workflow solutions with Novell's products.

Microsoft has an agreement with Wang, which enables it to give away Wang's ImageView image processing software with its latest version of the Windows operating system, Windows 95. This enables

CD-Rom systems - By Geoffrey Wheelwright

Rapidly becoming standard

It is already very hard to find any new desktop computer that does not include a built-in CD-Rom facility

This year is likely to be remembered as the one in which CD-Rom, the data storage format based on Compact Disc technology, became the standard for distributing commercial software and started to take off as a way for corporate computer users to archive their data.

According to statistics from London-based First Information Group, a leading UK multimedia company that produces CD-Rom titles and prepares CD-based training materials for corporate clients, there were more than 49m CD-Rom drives installed worldwide by the end of last year - with that number predicted to rise to more than 100m by the year 2000. The company

also predicts that the percentage of UK homes with CD-Rom-based PCs will grow from a mere 2 per cent in 1994 to 32 per cent by the end of 1998.

These figures confirm what most in the computer industry already know: CD-Rom hardware is the last-becoming standard on all desktop personal computers, and even many high-end portable notebook computers. In fact, it is already very hard to find any new desktop computer that does not include a built-in CD-Rom.

Since software published on CD-Rom is much cheaper for software manufacturers to produce - the huge capacity of a CD-Rom means that manufacturers do not have to put dozens of floppy disks in each box which to hold the software, and they can publish an electronic version of the manual instead of printing a large, bulky and expensive paper version - it is also becoming the preferred way of offering new software.

Offering software on CD-Rom also cuts down on piracy, because it is extremely time-consuming to copy up to 800 Mb from a CD-Rom on to floppy disks - or the hard disk of another computer.

For users, software published on CD-Rom lets them get to work more quickly. There is no sitting in front of the computer constantly inserting new floppy disks while the software is being installed.

Users installing new software from a CD-Rom typically just have to issue the necessary commands to set up the software and can then have a cup of tea while they wait - without worrying that the computer will be screaming for attention every few minutes.

In addition to its popularity as a distribution medium for commercial software, a new breed of affordable, recordable CD-Rom - known as CD-R - is

causing many corporate computer users to turn to CD-Rom as a fast and inexpensive way of backing up their vital corporate information. In the US, for example, CD-Rom recorders are available for less than \$1,000 and allow users to create CD-Rom discs that can be played on any standard CD-Rom drive - as well as play standard CD-Rom discs from commercial vendors.

For example, Pinnacle Micro (a pioneer in the CD-R business), introduced a new Recordable CD system in early January with a starting price of only \$896. Known as the Pinnacle RCD 5040, this system is distinguished not only by its low price; the performance is also superior to that of many previous CD-R systems - while it is a 2X CD recorder, it can read CD-Rom software at 4X (quad) speeds. The company expects the RCD 5040 to appeal to both the corporate and consumer markets for data archiving and making low-cost, custom CDs.

The new RCD 5040 Recordable CD system replaces its predecessor, the RCD 5020 and comes in both internal and external models.

Pinnacle suggests that it has a good shot at the traditional magnetic tape backup market by offering CD-R systems at this price with improved performance. For this reason, both Mac and PC versions include custom Backup Utilities which allow you to create permanent archives of data held on a hard disk. Pinnacle says the PC version, CD Archive, offers the only Microsoft Backup Compatible utility for backing up data to compact disc.

Not surprisingly, the company is bullish on this product - and the whole CD-R market. "The CD-R market is exploding," said Scott Blum, executive vice-president of Pinnacle. "We are expecting sales to continue growing rapidly." He even predicts that CD-R systems will replace tape

Fast access to online services

Continued from previous page

sions, will soon be offering content to consumers through Rogers WAWE."

Those who use the service need to have a minimum 486SX25 megahertz processor with 5MB of RAM and a Super VGA monitor. Subscribers are then equipped with a cable modem, rental of which is included in the price of the service. The service also includes a range of services Rogers Wave has assembled.

These include Wave Web links to explore the Web for entertainment and learning, a facility that Rogers calls "Tidal Wave" Web links which give users access to specially-designed high-speed content such as Lifetime and the Life magazine's online publication - as well as electronic mail capabilities.

If Rogers encounters no big stumbling blocks during this trial, the company will make the service available in a number of additional Canadian markets later this year with widespread access to the service in 1997.

Through a consortium involving Rogers Cable Systems, Shaw Communications of Calgary, and Groupe Vidéotron of Montreal, the cable service will be available nationally in Canada as Rogers' partners Shaw and Vidéotron roll out their versions.

Rogers is also making the Wave service available for schools in an initiative directed to students from kindergarten through to Grade 12.

Wave for Schools provides users with high-speed interactive access to a suite of content, including the Internet, Industry Canada's Schoolnet, libraries and databases.

Future educational services will include online newspapers, magazines, museum databases, and other information facilities.

Students will also be able to participate in online lessons.

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Converging technologies

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Converging technologies - the electronic office

Document management - By Geoffrey Wheelwright

New era of integration dawns

Photocopiers, printers, scanners and fax machines will all live on the local area network

Document management is now being tightly integrated with existing personal computer-based local area networks (Lans) by means of advanced office equipment.

The clearest indication yet of this came late last year with announcements by Hewlett-Packard and Xerox Corporation, both of which pointed the way to a world where photocopiers, printers, scanners and fax machines will all live on the local area network to provide document management functions - and it will be network managers, rather than office equipment managers, who will be charged with maintaining and installing them.

HP's announcements came first. In early October the company unveiled a networking strategy for printers and associated products that it calls "received printing". The idea is that as documents are increasingly being received in digital format (for example, via corporate fax modems and network fax gateways) and are being distributed digitally (via electronic mail), there will be a shift towards allowing users to decide how and when (if at all) those documents move from computer screen to paper.

For example, rather than the cumbersome task of passing around a company internal memos and received faxes on paper, the network would handle the process digitally and users would decide for themselves which documents they wanted to print out - and which devices they would use to print them out.

In a speech at the annual Fall Comdex trade show in Las Vegas, Richard C. (Dick) Watts, HP vice-president and general manager of the Personal Information Products Group, elaborated on the HP strategy.

Mr Watts said that HP wanted to change the way documents were handled and he described what he called a new

"distribute and print" model for paper management which would eliminate the older and inefficient print-multiple-copies-and-distribute model.

The "distribute and print" model allows network scanners to serve as efficient and versatile on-ramps to the information highway or network system. The idea is that when HP network printers are combined with HP network scanners, information can enter the network system easily - then be delivered electronically and printed as multiple originals.

Xerox also took a similar line last October when it launched a family of digital document office systems that allow users of networked personal computers and work stations to perform new document production and distribution services from the desktop. The company says these systems are designed to create "a new category of office device that improves office productivity by bringing an array of advanced document services to the desktop".

But what the new Xerox Document Centre System 35 (designed for up to 50 users on a network) and Xerox Document Centre System 20 (designed for up to 20 users on a network) machines really do is provide office equipment that is used, controlled and managed over the network.

These systems are likely to move responsibility for many forms of traditional office equipment from the office and office equipment manager to the network manager - as the performance and reliability of the network now become vital to the proper operation of this new generation of office equipment. In addition, it will be the network that will tell users and administrators alike whether a given machine needs toner, needs to have a different size of paper loaded or has run out of staples.

According to Paul Allaire, chairman and CEO of Xerox, there has been a problem in how the documents used in an office have been perceived. "Until now, offices have been networked, but documents haven't," he says. "Gains in individual output and personal productivity, expressed in the

exploding growth of new digital documents from PCs, software and networks, have not translated into gains in the productivity of work groups. This is because a variety of incompatible user interfaces, formats, operating systems and network environments make distributing and sharing these documents difficult. Technology often gets in the way, causing delays, bottlenecks and non-productive steps in people's work. It's a clear and pressing problem."

He suggested that by making documents a network resource, much greater value can be gained from them. "There's a deeper issue - the work group where people work together creatively and collaboratively in teams is where the collective knowledge that typically creates business value is shared, built and used," suggested Mr Allaire.

"Energy which should go into the work itself - creating content and adding value to information - is diverted into

working around the barriers and bottlenecks and doing what people consider to be unproductive, mundane tasks. This is a root cause of lagging office productivity and mounting worker frustration."

The Xerox solution is the company's new Document Centre product.

"We called it Document Centre because we believe it will be seen as a real centre of expertise and centre for services that knowledge workers can go to and depend on for managing the daily flood of inputs, outputs and processing tasks that characterise the cycling of documents and the cycling of knowledge work," said Mr Allaire.

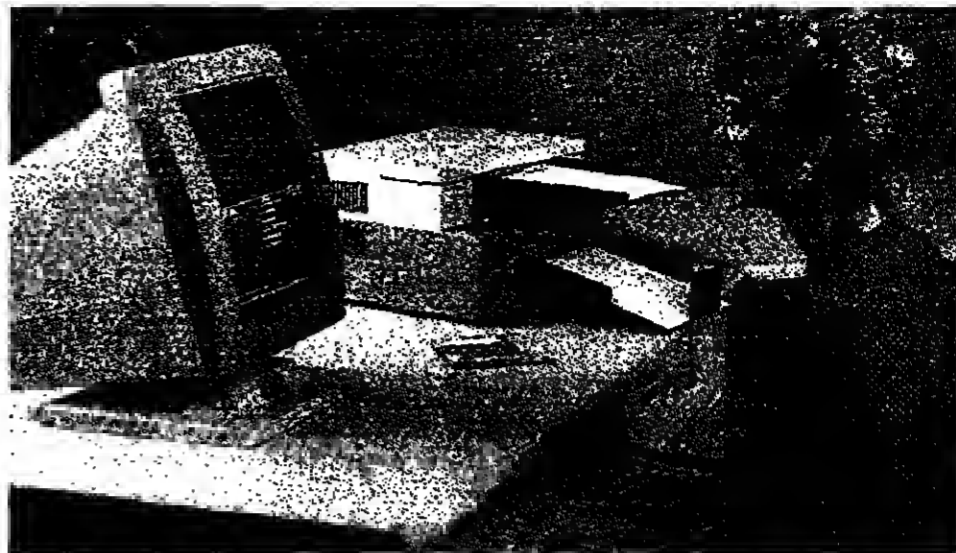
"At one level, Xerox Document Centre customers will be scanning, faxing, printing and copying - from anywhere in their workplace. At another level, they will be using, gathering, building, creating and sharing the knowledge needed in their work. Until now, our

desktops have been connected electronically through networks. With Xerox networked document systems, the vision is we can connect our ideas through documents.

"With this new category of office document systems, we believe that many of the frustrations, delays and bottlenecks will gradually fade into the background and more energy will be channelled into the creation and enhancement of content - the good work we call 'knowledge work.'"

But the real question in offices around the world will be whether or not it actually solves any problems.

There may well be many advantages to be gained from an office where document distribution takes place principally over the network - but the teething experiences that a large number of corporations have had with the reliability and implementation of new network-based services could well colour their judgment in accepting the idea of technolo-



As office documents are increasingly received in digital format - for example, via corporate fax modems and network fax gateways - and are being distributed digitally, via electronic mail, there will be a shift towards allowing users to decide how and when (if at all) those documents move from computer screen to paper

gies that try and bundle a whole bunch of services together.

The key to the success of this kind of technology will lie in whether or not it really does add up to more than the sum of its parts. That has so far been the downfall of most fax-copier-printer-scanner "multi-

function" products and document management services - they do not do any single function as well as the best of their single-function counterparts. They also require that you commit yourself to a single device when some users are wary of having all their technological eggs in one basket.

After all, when your fax machine goes down, it does not usually take your printer, scanner and photocopier with it. But on a multi-function device it does. And on a networked multi-function device, used for document management, that could affect a lot of people.

Office computing - report by Joia Shillingford

Strong demand for client-server software

The latest products are providing better security and performance monitoring

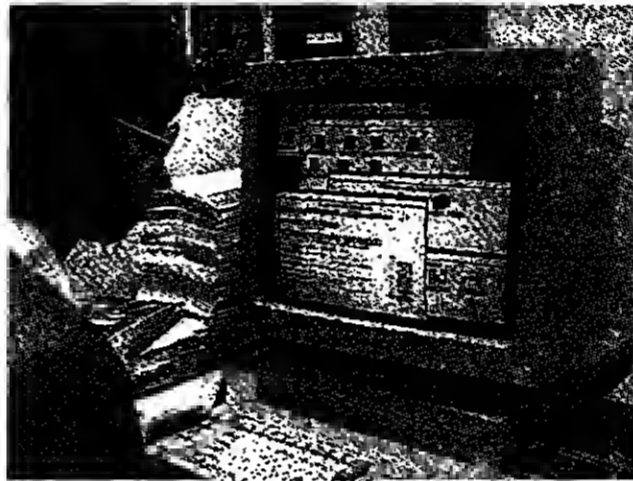
Early client-server systems often served a single department, but now they are spreading throughout whole organisations. Companies are starting to base their whole computing environment on the client-server model, where processing is shared between "client" PCs and more powerful "server" systems.

Citibank opted for a client-server solution when it wanted to offer common funds transfer (FT) across Europe. It is using a combination of the Windows NT operating system (on servers and eventually on PCs) and Microsoft's SQL Server database as a starting point for

entering details of FT transactions, which are still processed on the mainframe. But key processes are gradually being moved off the mainframe and onto Compaq servers running SQL Server.

Company-wide client-server brings new management challenges. For example, IT managers must work out what data is required throughout the organisation and where it should best be stored to minimise network traffic. They must also work out how to integrate the company's older computers (such as mainframes) into the new environment.

Another challenge is to design a client-server system which is flexible enough to cope with changes in the company's business. "Some client-server systems are in danger of becoming legacy systems (systems that can't adapt)," says Eric Woods, a senior con-



Good news for users: easier-to-use software is on the way

sultant at researchers Ovum. Mr Woods believes that companies designing their own client-server development tools and middleware software for extracting data from different

systems are "crazy". "The complexity of client-server means that you have to delegate some of these issues, and let vendors worry about connectivity and staying up to

date," says Mr Woods. The good news for users is that client-server software is improving. The latest products are providing better security and performance monitoring. They are also easier to use.

In particular, more and more suppliers are competing to establish their middleware products as the industry standard. "Good middleware should make a complex distributed environment look like a single machine even if it includes Windows PCs, local area networks, Unix systems and mainframes," says Woods.

The six types of middleware include: Database connectivity products, such as those offered by Information Builders; Remote-Procedure-Call (RPC) based systems. RPC is one of the fundamental building blocks of middleware; Message-oriented middle-

ware, such as IBM's MQ Series; Object-request-brokers (Orbs). Choices include Microsoft's Ole (object linking and embedding) and Iona's Orbitx. The Object Management Group is attempting to define an industry standard for Orbs; Distributed Computing Environment (DCE) based systems. DCE services (included with powerful systems from IBM, Digital Equipment etc) help to make several linked machines look like one. Products which simplify the process include Entera from Open Environment and Encina from IBM (based on a TP-Monitor); and Distributed Transaction Processing (TP) Monitors eg Tuxedo from Novell and CICS from IBM.

Object-request-broker products are probably closest to

Continued on next page

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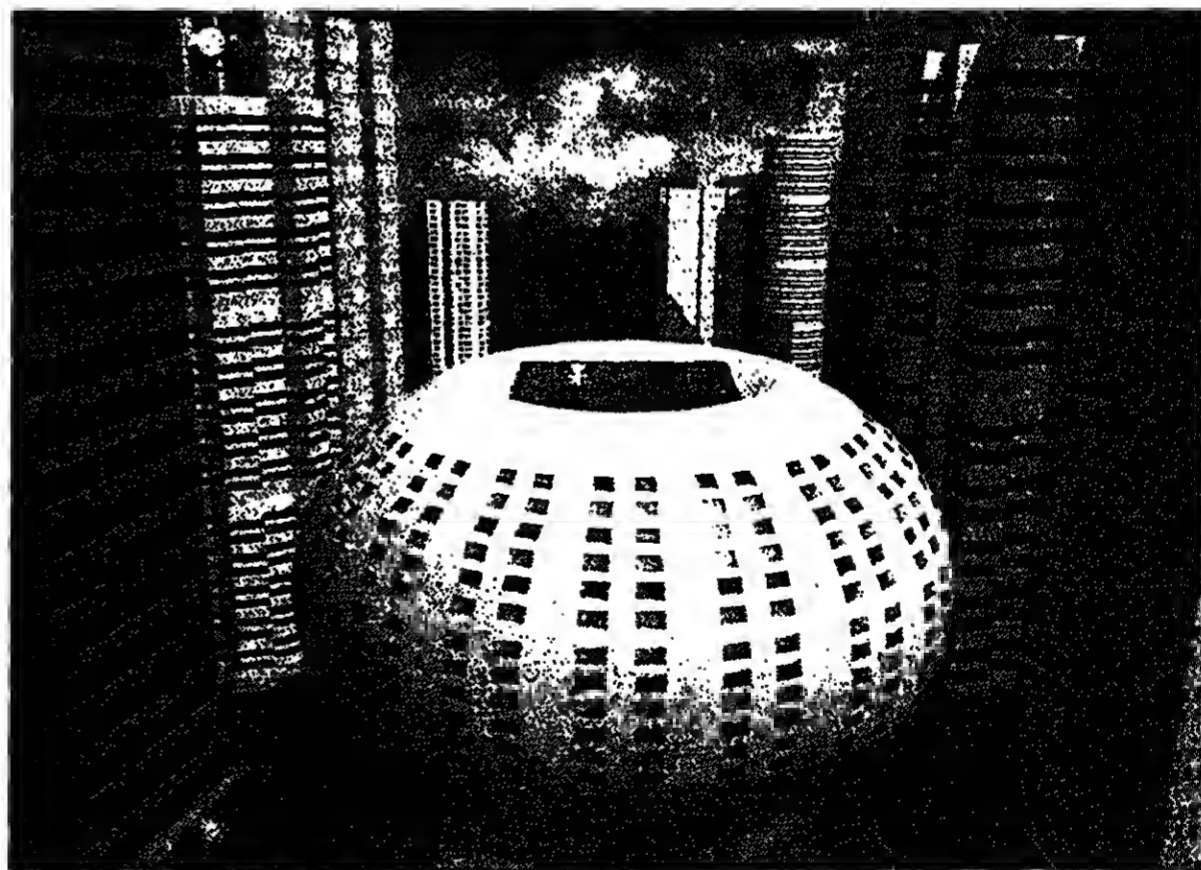
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■ Mobile computing/remote access - By Michael Dempsey

At home with the office

Getting mobile staff online via their notebooks justifies the cost of expensive state-of-the-art equipment

A recent survey of 400 notebook PC users throughout the UK, Germany, France and Sweden revealed that most users still do not link their portable computer to the office network.

A poll carried out on behalf of PC-maker Dell by IDC, the research group, shows that less than half the companies in Europe using portable computers also support remote communications. This compares with 80 per cent of similar US companies linking notebooks to the office.

In the Dell-sponsored survey, 35 per cent of respondents said their notebooks were not connected to the office. Notebook users tended to take their machine home, working from there for an average of 8 1/2 hours a week. But only 30 per cent accessed office resources when working from home.

Because Dell makes notebook PCs, it has an obvious interest in encouraging their use among the working population - and the company uses an attractive argument to encourage remote access: getting mobile staff online via their notebooks not only increases personal productivity, it also justifies the cost of expensive state-of-the-art equipment.

Dell claims that an aggressive attitude to remote communications means the return on investment can occur before half the depreciation period has gone by.

One company that has taken this message to heart is clothing rental giant Sketchley Textile Services. With a £53m turnover and 1,800 employees, Sketchley keeps a significant



Alistair McCrae: his staff at Sketchley use laptop PCs to help maintain garment "wearer records" on the company's 650,000 end-users

portion of British industry in clean work garments. Some 650,000 people, working for companies as big as Ford and British Aerospace, wear overalls and uniforms issued by Sketchley. These clothes are rented by the customer, with Sketchley undertaking to replace worn-out items and keep up with the employee's measurements.

It is an enormous task which used to be carried out by a field force who were equipped with paper forms and who had to key in data when they returned to their offices. Sketchley has 30,000 business customers who can send rented garments to any one of seven regional centres - and the company then has to return each garment back to the person who wears it. Field staff armed with Compaq laptop PCs are the key to maintaining this service.

Alistair McCrae, sales and services director at Sketchley, explains that personal contact is the only way to match the company's product with the continually shifting profile of customer employees. "We have to keep making inquiries to know that the contract is meeting expectations. You have to talk to the people you're cloth-

ing. Are they getting fatter or thinner? Have they changed jobs and do they need a new outfit?"

McCrace's staff maintain wearer records on every one of its 650,000 end-users. The records detail the name of the staff member and give individual outfit size and type and they also note how often a garment is changed. In the food industry, hygiene requirements mean that this will be every day. Garments are turned around in one week, and Sketchley receives 10,000 requests to alter garments every week.

All this data is held on a large Digital Vax mainframe computer. But this machine is fuelled by regular input from the field force. The key "data window" at Sketchley lasts six hours and begins at 10pm every Sunday. Field staff plug their laptop into a home modem line by 10pm and during the next six hours the laptops are polled by the mainframe computer.

Development software from Cognos, costing £250 for each laptop used by the 30-strong field force, allowed Sketchley's data processing manager George Donnelly to design a

data downloading regime that was compatible with the group's mainframe. The total cost of moving from paper to a laptop-equipped mobile workforce came to about £30,000, but McCrae says this is money well spent, citing the competitive nature of the commercial garments business.

Sketchley has a £4m programme to issue all 125,000 employees of J. Sainsbury, the UK food retail chain, with an entirely new uniform. The shift from a familiar orange outfit to the new blue uniform was a big exercise in product branding. There cannot be any delays in such a huge marketing exercise.

Sketchley relied on the laptops to gather and transmit relevant data on the client's workforce and the retooling of Sainsbury took 31 months. With 23 years at Sketchley and a long time in the field writing down measurements on paper, Mr McCrae has no doubts that remote access is the only way ahead - "we're in a highly dynamic business. We need to change as the customers change."

The US has led the way with remote access but, as Sketchley illustrates, Europeans are catching up. Syntec, a \$750m software house, sells PCAnywhere. This £149 package allows portable PC users to dial in from an outside location and replicate the facilities of an office machine on their laptop screen.

So a technically-outdated machine can call up software running on the latest Pentium workstation. Syntec claims a million users for this product: 70 per cent of them in the US. However, the company believes that a change is under way; Scandinavian companies, faced with staff distributed over remote and difficult terrain, are signing up for PC Anywhere. As company accountants demand better utilisation of expensive portable PCs, remote access has a big future.

services are being offered for digital networks, which are harder to clone or bug, and better for data. However, new security features are being introduced to prevent cloning on analogue networks.

On April 1, Vodafone will issue its analogue subscribers (it has analogue and GSM networks) with a special Personal Identification Number. This must be typed into the handset and thereafter it will generate a series of random security PINs.

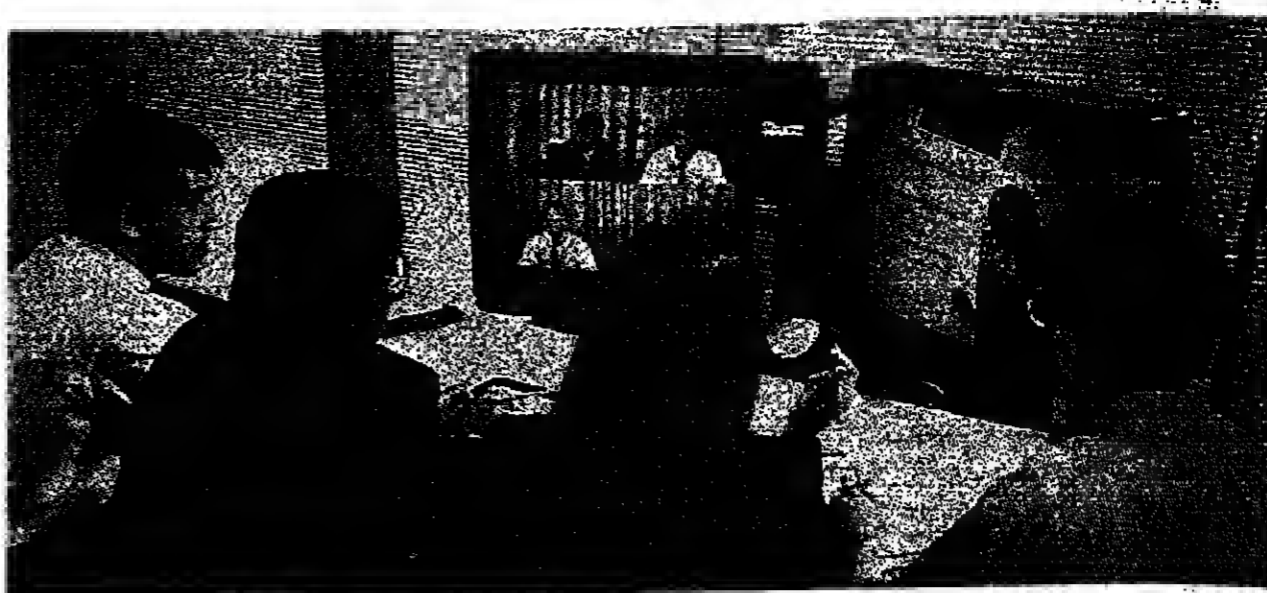
This means that even if a would-be phone clone could crack the code, by the time he/she had done so, it would probably have changed. The authentication feature will work only on handsets designed to accept authentication (usually manufactured after May 1995). These are owned by about half of Vodafone's two million analogue subscribers.

As many as several thousand might prove faulty and, if so, will be replaced free of charge by Vodafone. Other Vodafone analogue subscribers will either need to buy a new phone (with built-in authentication PIN), or transfer to a GSM service.

To find out their new PIN, customers need to contact Vodafone's authentication centre, or their service provider.

Future The future promises all sorts of exciting value-added services for mobiles. Mr Tardieu thinks digital mobiles (with SIM - subscriber identity module - smart cards) could be used as payment devices in a year.

He says it is possible to include all sorts of information that identifies the user in the smart card, which could also have credit/debit card features built in.



Reaching a wider audience: British Telecom's new visual communications systems, the VSS: a single monitor version costs £24,000 and £27,000 for the double version. In a recent deal, PictureTel's videoconferencing equipment was also included in BT's portfolio of conferencing services

■ High-speed ISDN lines

ISDN looks set to become a central plank among the convergent technologies underpinning the information society of the twenty-first century.

Digital voice and data telecommunications systems worldwide are being built on ISDN and it is likely to become a mature market in the next few years.

The international digital network is becoming popular because it gives faster and clearer connections than the old analogue network. Businesses appreciate it either because it is cheaper than the alternative methods of communication or because it enables them to do things they could not do before.

It will undoubtedly be a major influence on the information technology of the future," says June Campbell, ISDN business development manager for BT, the UK's largest ISDN operator.

While ISDN is a 1970s concept that met with slow implementation, a European study by the Yankee Group Europe last year concluded the technology "is about to hit the big time."

A UK survey by Computer Intelligence for network equipment vendor Eicon Technology, found that 78 per cent of technology managers expected their use of ISDN to increase this year.

Yankee Group says that promotion by the public network operators, especially in Germany, the advance of the Euro-ISDN standard, a boom in software applications and rising demand for access to the Internet were the main causes of the growth.

In the past couple of years, ISDN has been adopted by many retailers for routine credit card validation. They also increasingly use ISDN lines for polling their branches to gather sales figures. Some have replaced modems by ISDN, though modems are becoming faster and cheaper and cannot yet be written off.

Virtually every sector of the economy has taken up ISDN, ranging from manufacturers transmitting design drawings to hospitals remotely accessing X-rays, to colleges introducing distance-learning programmes. Recently, ISDN has extended its customer base from large companies to medium-sized and small businesses.

Design companies use it to pass their artwork to advertising and public relations agencies and their customers for comment before sending it, again via ISDN, to the printers.

These companies often like to conduct videoconferencing over ISDN, so that they can discuss their work face-to-face with their customers. Many people in these types of small business are now teleworkers, who could benefit from remote access to their customers' local area networks. BT wants to target them as potential ISDN customers, but this calls for an improvement in the network's coverage, which is not yet fully nationwide.

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Standardisation is expected to force equipment prices down. Euro-ISDN clearly demonstrates the virtues of the single market. Rascal-Datcom of the UK was able to introduce Euro-ISDN products in 15 countries at once, though there are still extra tests to be undertaken in some countries before equipment can be connected to the public network.

Rascal's senior marketing manager Colin Watts says the advance of Euro-ISDN is "an enormous step forward". However, a few doubts still cloud ISDN's prospects: one issue is how it will relate to ATM (Asynchronous Transfer Mode), a networking standard

A central concept for converging technologies

Fast digital phone links deliver voice, pictures and even videoconferencing, writes George Black

credit card validation. They also increasingly use ISDN lines for polling their branches to gather sales figures. Some have replaced modems by ISDN, though modems are becoming faster and cheaper and cannot yet be written off.

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which has technically much in common with ISDN and is also being hailed as an essential feature of converging technologies. Experts remain unsure about what will be the relationship between broadband ISDN, the newest version of the system, and ATM. The present signs are that they will be complementary, rather than competitive.

"Large networks may well have ATM backbones and ISDN spokes," says BT's June Campbell. ATM's advantage will be its power, whereas ISDN's strength will lie in its flexibility in bit view.

Another problem is that many users do not understand how to install ISDN most effectively. Rascal's Colin Watts says there is still a need for an educative process.

A third source of concern is the role of BT, which maintains, considerably higher prices for ISDN than some of its European counterparts. Equipment vendors have urged it to change this, arguing that BT's costs for installing ISDN have fallen, so its customers' bills should also fall. But BT responds that it is constrained by the regulator OfTel, which trows on cross-subsidies from one business area to another.

Cable television companies now offer ISDN, which may put more pressure on BT to reduce its charges.

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■ Cellular telephony - By Joia Shillingford

Mobile telecom services seek ways to add value

Orange will soon introduce a 'Mystic Meg' astrology line and a sportsline

In 20 years' time, mobile voice calls will be virtually free and suppliers will make their money from value-added services (VAS).

The services offered by PCN (Personal Communications Network) operators such as Orange and Dac-2-Dac, and GSM (Global System for Mobile) operators such as Vodafone and Cellnet are not that different. This is because PCN is simply a variant of the GSM digital standard.

The main difference is in which services they charge for and how hard they promote them.

The most popular VAS of all is voice mail. Vodafone says it has 550,000 subscribers for its Recall voice mail service. And at soon-to-be floated Orange, voice mail and Calling Line Identity (which flags up the caller's number) are the most popular value-added services.

Hubert Tardieu, head of Sema's telecoms business, says: "Mobile network operators like voice mail because it generates extra revenue without them having to charge more." Most operators provide free voice mail, but earn more when subscribers phone the people who have left them messages.

There is also a growing number of information services available to mobile users. Vodafone is about to introduce a share information service,

which will display prices on a mobile's liquid crystal display (LCD). Orange will soon introduce a Mystic Meg line (astrology) and a Sportsline. Mercury One2One's smart-card comes programmed with useful fixed-line numbers for Interflora, Ticket Master, AA services and so on.

There are also a growing number of mobile data services. These fall into three categories according to David Daniell, a spokesman for Vodafone:

Short message service This facility - SMS - is rather like paging and allows alphanumeric messages of up to 160 characters to be sent to a GSM mobile's LCD. Short messages can also be sent from a GSM handset by pressing certain keys repeatedly, for example one press equals a, two presses equals b and so on.

If this sounds cumbersome, short messages can also be sent from a Psion 3a Organizer linked to a suitable phone (a Nokia 2110, Orbitel 945, or Philips 747) and Vodafone's GSM service.

A phone such as the Nokia 2110 costs £100 from Vodacell. The user will also need to buy an extra kit costing £49.95 that includes a cable and software. The cable plugs into the phone, the card at the bottom end of the cable plugs into the Psion.

Sending short messages from a Psion is easier than from a mobile handset because it has a full (though not full-sized) keyboard. Psion has a six-

month exclusive agreement with Vodafone, but other organiser suppliers, such as Texas Instruments, Sharp and Hewlett-Packard will soon bring products to market based on a similar concept.

SMS can also be used from a PC. SMS is cheap at 10 pence a message and it is possible to get an SMS-only tariff. There are roaming agreements allowing interoperability between Vodafone and some other European GSM operators. Or between Cellnet and other operators.

However, there is no SMS interworking agreement between Vodafone and Cellnet, according to Daniell. So a Vodafone user cannot send a short message to a Cellnet user.

In addition to SMS, GSM mobile users who travel with a portable computer can buy a kit to link portable and phone. Again, they will need to use a phone designed for data such as the Nokia 2110. They will then be able to use the portable to send and receive electronic mail, access databases or send faxes.

Among PCN users, Orange customers have access to mobile data. One2One users will get data services later this year (as well as CLI and international roaming).

However, one drawback of sending data over cellular is that data transmission speeds are not particularly high: speeds of up to 9,600 bits per second are typical. On the plus side, mobile data is far more convenient than trying to hook up a modem to the hotel phone.

Most of the new value-added services are being offered for digital networks, which are harder to clone or bug, and better for data. However, new security features are being introduced to prevent cloning on analogue networks.

On April 1, Vodafone will issue its analogue subscribers (it has analogue and GSM networks) with a special Personal Identification Number. This must be typed into the handset and thereafter it will generate a series of random security PINs.

This means that even if a would-be phone clone could crack the code, by the time he/she had done so, it would probably have changed. The authentication feature will work only on handsets designed to accept authentication (usually manufactured after May 1995). These are owned by about half of Vodafone's two million analogue subscribers.

As many as several thousand might prove faulty and, if so, will be replaced free of charge by Vodafone. Other Vodafone analogue subscribers will either need to buy a new phone (with built-in authentication PIN), or transfer to a GSM service.

To find out their new PIN, customers need to contact Vodafone's authentication centre, or their service provider.

Future The future promises all sorts of exciting value-added services for mobiles. Mr Tardieu thinks digital mobiles (with SIM - subscriber identity module - smart cards) could be used as payment devices in a year.

■ Wireless computing/office telecoms - By Joia Shillingford

Window on a wireless future

Cordless extensions are three times as expensive as standard corded

Media mogul Rupert Murdoch believes that we are moving to a wireless world and - with MCL, the long-distance phone company - has bought a US satellite TV network to prove it. The plan is to use this, not just for television, but also to give businesses and consumers high-speed access to data services, such as the Internet.

Part of the impetus for wireless office services comes from users' experience of mobile telephony. They are starting to want the same convenience and flexibility inside the office as they get outside.

But, with mobile telephony, wire-free solutions for the office tend to come at a premium.

The cordless PBX (switchboard) market increased in 1995, showing that some users are willing to pay a premium for cordless functionality, says Diane Trivett, an industry analyst at Dataquest - "but to realise full market potential, the price needs to fall further."

Cordless extensions are three times as expensive as standard corded ones. But they can help to improve customer service because it is easier for callers to track down the person they want. If fewer calls are missed, the organisation will also spend less money calling people back.

There are two standards for cordless office phones: DECT (Digital Cordless Telephony) and CT2 (the digital technology behind the former Rabbit telepoint network). Most see DECT as the cordless office

standard of the future, but Northern Telecom has had some success with CT2. Dual-mode handsets are also being developed. These are cordless phones, working to the DECT standard, in the office, and mobile phones, working to the Global System for Mobile (GSM) standard, outside it.

Val Simpson, product marketing manager at GPT Communications Systems, believes that "the future of mobile telephony for businesses has to be dual handset working".

At present, key drivers for the cordless PBX (CPBX) market are the introduction of new products, improved distribution strategies and falling prices.

In the early days, users had only a few CPBX suppliers to choose from: Nortel, GPT and Ericsson. Now most of the traditional PBX suppliers are in the market. They include: Alcatel, Ascra, AT&T, DeTeWe, Matra, Peacock, Philips and Siemens.

Vendors, such as Mitel and Multicom, act as value-added resellers for others' systems. More new entrants are expected in 1996, including Panasonic, Hagenau and Bosch Telecom, together with new products from existing players such as Siemens, Matra and Ascra.

By 1999, Dataquest predicts that the European digital CPBX market will grow by 500 per cent from \$115m in 1994 to \$715m. In terms of shipments, the market will increase from 4,500 systems and 82,000 cordless handsets to 62,825 systems with 1.9m handsets.

DECT is expected to account for 85 per cent of the market in terms of system shipments, leaving CT2 with just 15 per cent. But these take-up levels will only be achieved if the price differential between cordless and fixed systems falls even further. Another premium-

priced wireless solution is the wireless local area network (Lan). Computer suppliers such as AT&T and Digital Equipment are still very much in favour of wireless Lans and believe that they will be a growth area in future.

This has yet to happen. Mark Purdom, a research analyst at Dataquest, says that most wireless Lans cost three or four times more than a wired Lan, are less standardised, and operate at less than

information. But other technologies such as infrared (a beam of red light) and microwave (high frequency radio waves) can also be used.

Some wireless Lans, such as that offered by Digital Equipment, allow seamless roaming for users with portable computers or organisers.

This is useful in a retail environment, where portable devices are used for stocktaking.

Wireless Lans offer a number of benefits. They can be installed in listed buildings, which are hard to cable. They are flexible, so it is easy to add new personal computers or put extra wireless cash tills on the shop floor during busy periods. Wireless Lans, are also quick to install and can cut costs if PCs or POS (point-of-sale) terminals are moved frequently.

Mr Purdom says the advantages offered by wireless Lans "have given them some success in niche markets, but they haven't yet found a winning horizontal application. Until they do, they will remain a minor product area".

For a minor product area there are plenty of suppliers: about 25 worldwide. Among them are 3Com, NCR, Norand, Olivetti (which has developed 10 Mbps-a-second wireless extensions for Asynchronous Transfer Mode networks), Telson, Proxim, Siemens Nixdorf, Symbol, Photonics and Motorola.

Most of the world's leading computer vendors sell wireless Lans, often made by other companies.

The Yankee Group, a US-based research consultancy, believes that the Wireless Lan market will be worth \$1,107.2m by 1998, with \$725m of this coming from vertical applications, such as retail, medical, warehousing and distribution.



Rupert Murdoch making plans for a wireless world

10 megabits (Mbps) per second, the standard for wired Lans). A typical wireless Lan costs between \$800 and \$1,600 per user.

Computers or cash tills in a wireless environment contain radio interface cards and antennae that send a signal to the nearest base station.

A series of base stations (usually mounted on the ceiling) provides a backbone network that links all the devices together, enabling them to send and receive information or transmit it to a central computer.

Most wireless Lans use radio frequencies to exchange

Advertisement for security services with a large 'Security' heading and text about manufacturing and escaping from... The text is partially obscured and difficult to read due to the image quality.

Security: a crucial issue

Dean Adams examines the question of security in the client-server environment

There is a widespread perception in the computer industry that the mainframe is 'safer' than the client-server environment. This is a misleading assumption. Both environments suffer, in an organisation's security - internal attacks on the system. Computers are still prone to error and, in a few cases, malicious intent.

In short, distributed computing is no more inherently weak than mainframe computing. External threats, though a real problem, are generally responsible for fewer losses than those that are internal to the organisation. In the distributed world, problems arise because distributed systems may be more complex and therefore harder to manage.

The level of security features incorporated in hardware and software products is dependent on what each individual vendor decides. This causes problems of portability and interoperability for the customer, leading to what amounts to proprietary lock-in.

An organisation which is currently helping to solve these issues is X/Open. An independent and non-commercial body, its membership comprises vendors and users who are intimately involved in the development and piecing together of standards for practical use in the commercial marketplace.

X/Open is developing, with its members, a set of *de facto* security standards for the computing industry. These will aim to set and enforce a new superior level of security capabilities for distributed systems. The standards will be known as the X/Open Security Brands and be to the computing industry what the kitemark is to the consumer industry.

The brand will bring benefits to both vendors and users. Vendors will be able to demonstrate significantly improved security capabilities without incurring the extra costs of undertaking security evaluations. Users will get peace of mind as well as lower costs. Lower costs will result from not having to pay the extra premium for security features as the X/Open brand becomes an industry standard.

Additionally, there will be fewer damaging and costly incidents likely to occur from inadvertent user errors or due to operation by non-skilled staff because safe

defaults are enforced by the standards, for system installation, startup and restart. X/Open is creating detailed standards that can deal with the distributed computing environment. These are in the following areas: secure communications, cryptographic systems, distributed auditing and single sign-on.

Encryption is a necessary supporting technology for secure communications. In the nascent world of electronic commerce, proper encryption will be the deciding factor in its success. However, encryption is a contentious subject: indeed, governments are restricting the import and export of any form of encryption. This may smack of Big Brother, but the thought of criminal organisations being able to carry on their activities completely undetected by law



Dean Adams: 'Encryption is necessary'

enforcement agencies is a worrying one. However, these issues need to be resolved if business is to be able to take advantage of the enormous opportunities offered by electronic commerce.

Work is going on to resolve those issues and to define standards that will provide practical solutions for the commercial marketplace. For instance, it may be possible to define an electronic warrant that would enable law enforcement agencies, (subject to due process of law) to obtain access to encrypted information where they suspect wrongdoing.

X/Open is in favour of allowing business to use strong encryption to protect its assets and its communications. However, if provision is not made for law enforcement to continue in a practical manner, the restrictions on import/export and use of cryptography are likely to continue. Therefore, X/Open is examining mechanisms to allow for law enforcement agency

access, (having followed the due legal process). Public keys should not be held by anyone except the owner.

The development of standards for the Public Key cryptographic mechanisms is also high on the agenda. The idea behind this cryptography is ingenious but simple: anyone can encrypt a message but only the receiver can decode the message.

Two keys are created: a private key and a public key. These are created as a pair, by a complex mathematical algorithm. The sender must encrypt its message with the "public" key of the receiver. The receiver decodes the encrypted message with "private" key.

Only the receiver knows the identity of the private key, which is individual to the receiver.

X/Open is developing a Single Sign-On standard, whereby users log on once only. Currently, the practice of dedicating a password for each computer system that a user requires access to results in too many passwords for individuals to remember as they move around departments.

The growing rise of the Internet adds an extra dimension to security within a distributed systems environment. The Internet provides very little in the way of support for secure communications, but stronger mechanisms are on the way, and within two years communication will be safer on the Internet.

Firewalls provide much-needed security protection that otherwise would not be available to users of system connected to the Internet. However, even when things become safer, direct access to the Internet should be limited to a few machines on the corporate network, if not just the one.

Forcing all communications to go through a single firewall point-of-entry ensures that these communications have to pass through a stringently and tightly-managed system. Organisations risk, once again, human error to prevail if individuals are obliged to manage their individual firewalls.

Eventually, organisations will come to rely on standards that have been developed in an open forum. In these types of forums, vendors and users try to break the emerging standards. In true Darwinian theory, the standard that remains unbroken gets the X/Open brand. As the distributed systems environment evolves, the resulting changes will be reflected in the standards giving the user peace of mind, giving organisations continuing peace of mind.

The writer, Dean Adams is portability manager for X/Open.

■ Linking the systems - By Michael Dempsey.

A grand, global strategy

Novell, the software company, has an ambitious plan to expand way beyond the horizons of computer networking

Networking computers together is an accepted way of boosting employee performance, but when networks proliferate, or grow from the domestic local area network (Lan) into international corporate communications webs, then management becomes an issue.

Novell is a \$2bn company that has been dedicated to networking since 1983. Novell's success has made it the number two software company in the world after Microsoft. The fact that its name is nowhere near as well-known as Microsoft is testimony to the submerged nature of networking software.

Novell claims 50m users worldwide, and is employed in 88 per cent of Fortune 1000 companies. But it is a fair bet that many of those users never give a thought to the identity of their network supplier.

Some companies would be alarmed at this state of affairs, but Novell has come to terms with the fact that most IT users prefer to get on with the task in hand and ignore the technology that enables them to do it. The IT product that gets used is the one that takes up the least time to master.

Novell now has an ambitious plan to expand this principle way beyond the horizons of computer networking. The Smart Global Network, or SGN, is Novell's grand strategy for linking up an enormous number of potential sites. The key to the SGN is the notion of intelligent devices; any object that contains a microprocessor.

Currently there are 10 microprocessors installed in assorted pieces of domestic and commercial equipment for every one inside a PC. By the end of this decade, that proportion will have become 50 to one. The SGN should exploit the untapped potential of these devices, activating the embedded intelligence in thousands of different pieces of equipment. One simple log-on procedure should suffice for



Network Management

As companies become increasingly dependent on networks, the skills to manage them become critical. Here and on the following pages, FT correspondents examine key issues

users the world over, using PIN numbers to address their own PC and linked devices.

Novell foresees a world in which individual vending machines will send a message down the line to inform the catering contractor that stock is running low. If the SGN pans out as its authors hope, individuals will be able to send messages from anywhere on the planet.

This network will encompass mobile phones, fax machines and gas meters. For the individual it means getting in touch with home electronics via a mobile phone. For corporates, the SGN could reduce reliance on field staff. Utility companies could read gas and electricity meters from a central location without sending employees to check customer consumption.

Bearing in mind the breadth of its application, Novell believes the SGN could create a global web with 1bn connections. No one company could possibly put such an electronic empire in place and so Novell is relying on a series of mutually beneficial alliances

with electronics manufacturers and telecoms providers to spread the SGN gospel.

A software toolkit, Natware Embedded Systems (Nes), has been bought by 75 commercial organisations including fax manufacturers Ricoh and Canon and Andover Controls of the US. Nes costs \$50,000 and opens the microprocessors embedded in users' products to the SGN.

Natware Connect Services (NCS) gives PTTs the right to offer SGN services. While licence charges to a PTT might amount to millions of dollars over several years, the potential payoff is huge. The national PTTs of Australia, Japan, Germany and France have signed up for NCS, hoping to offer new services at higher tariffs. These premium services will exploit the combination of SGN and fibre optic cabling to deliver better quality data transmission.

When infrastructure investment is included, the cost of implementing SGN could run into tens of billions of dollars. But the move to fibre optic cables is going to take place in

users the world over, using PIN numbers to address their own PC and linked devices.

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in any case, so Novell's SGN is hitching a ride on an industry trend. NCS has also been bought by US communications giant AT&T, and looks like pruning the bills of many large corpo-

rates faced with managing international voice and data networks operating over leased lines. By switching to the SGN world and employing NCS, a company could design its own native network and then effectively outsource the management of that network to a PTT. An important technical responsibility would have been offloaded while the corporate user retained whatever features it deemed necessary for its own operations.

The SGN will not wipe out network management as an issue. But it will allow companies to regain control of their data communications assets.

Adrian Holcombe is UK director of network services at Ascot Timeplex, a \$300m Swiss-owned maker of networking hardware. Mr Holcombe believes that too many commercial networks are proving unreliable and failing to carry transmissions because the users do not engage in strategic thinking.

"Capacity planning and analysis of traffic levels would allow the IT department to deliver a more reliable service," Mr Holcombe says, "but people are often preoccupied with finding a physical fault and fixing it."

Bay Networks is a \$2.2bn networking hardware and software group that is developing products to operate within the SGN. Steve Jenkins, UK managing director, believes that network management is about to become a lot easier. "Our goal is to take the complexity out of networking," he says. He shares a common opinion that the Internet is too chaotic for business users. "Novell's SGN will be like a professional Internet," he says.

The era of smart devices blipping signals across the globe is still some time off. But by the time Novell hits that one billion connections landmark, the headaches of logging into a system and the perils of keeping commercial traffic running smoothly just might be a thing of the past.

PC manufacturers struggle to escape from the bedroom

Most home PC owners keep their machines in the bedroom, the study or a spare room.

Home computing has emerged as one of the key trends in the 1990s. Having transformed business and the workplace, "the personal computer is now revolutionising access to information and communications in the home," notes Olivetti, the Italian technology group.

In the US, where computer usage is particularly advanced, 35 per cent of homes own a PC and 16 per cent of households with a multimedia PC have bought a second machine for their children.

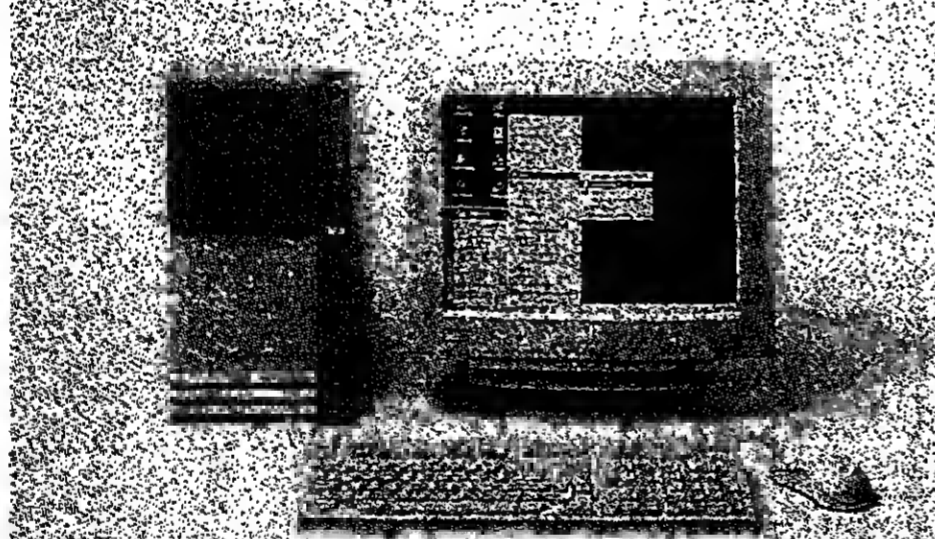
In Europe, spending on PCs overtook television spending in the UK and Germany in 1994. Sales of multimedia PCs this year are expected to account for almost half of overall home PC sales.

But despite the success of multimedia personal computers designed for home use over the past 18 months, PC manufacturers have still found it difficult to move their products out of the bedroom or study and into the living room. In Britain, a survey prepared for Packard Bell last summer confirmed that while the home computer is part of family life for about a fifth of UK households, it is usually kept apart from the TV, stereo and other home entertainment equipment.

Most home PC owners keep their machines in the bedroom (22 per cent), the study (20 per cent) or a spare room (17 per cent). Only 15 per cent keep their computer in the living room which despite the supposed convergence of consumer electronics and computing, remains the domain of the television set and stereo system. Surveys elsewhere paint a similar picture.

In an effort to overcome this segregation and build a broader base for their machines, some manufacturers have focused on building home PCs which combine most if not all the features of multimedia PC, television and hi-fi system.

Several approaches have been tried. The most popular, adopted by companies such as Compaq, Packard Bell and Apple Computer, has been to build multimedia machines complete with CD-Rom drives, stereo sound cards and television tuner cards capable of receiving and displaying televi-



Siemens Nixdorf's new Scenic Multimedia models have high performance components and feature integral TV and audio capabilities as standard. Manufacturers of integrated PCTVs report steady sales for their machines, even though the typical viewing habits associated with TV and PC are markedly different

sion pictures on a standard PC monitor. Another approach, favoured by companies such as Germany's Siemens Nixdorf, Britain's ICL and Compaq with its new Presario 5200 has been to build integrated or all-in-one PCTVs. Most of these machines can display a television picture or teletext page either full screen, or in a windows-style box.

Manufacturers of integrated PCTVs report steady sales for their machines, even though the typical viewing habits of TV and PC are markedly different - a PC is usually used by a solitary individual sitting close to the screen while a television set is often watched as part of a social gathering and at a distance. As a consequence, most analysts and retailers believe these hybrids have limited appeal confined to niche markets such as the student sector.

"Sales of computers that can also be used to view television and teletext are falling to live up to industry expectations," says Time Computer Systems, one of Britain's biggest direct sales retailers.

"The market is not ready for mass volume PCTV sales," says Colin Silcock, sales manager at Time. The company, which had been selling an extensive range of PCTVs, has withdrawn the systems and replaced them with standard multimedia PCs and optional plug-in TV cards.

Nevertheless, in an effort to overcome consumer resistance, Olivetti launched a different kind of PCTV last autumn. Olivetti's innovative Envision

machine is black, stylish and looks more like a video cassette recorder or a stackable stereo component than a powerful PC. Envision has built-in loudspeakers but it can also be plugged into a hi-fi system for better sound and connects with a TV set and VCR using standard "Scart" connectors.

Envision attempts to overcome one of the main criticisms of previous attempts to combine PC and television functionality - the inability of a standard television screen to match the high-definition image available from a dedicated PC monitor - by building in a device that eliminates the flicker and permits an acceptable quality of text.

Olivetti's machine is supplied with a remote control and a wireless infra-red keyboard with built-in trackball to provide the functions of a mouse device. Inside, Envision is still basically a traditional PC with an Intel 486 or Pentium 75 microprocessor, 8MB of memory, floppy and hard drives, and a CD-Rom which, in the top-of-the-range model, can also play the new digital Video CDs. In future, Envision will also operate as a set-top box, converting the digital signals of satellite video-on-demand services into analogue television output.

Apple Computer has developed a similar device called Pippin - a home electronics machine which delivers its sound and vision through a television, contains a Microprocessor, 6MB of Ram and a CD-Rom drive. It adds a games

controller but lacks a keyboard, a mouse or local storage and uses the television for display. Pippin has, however, met with a mixed response. Industry analysts such as Forrester Research argue that Pippin, like other similar devices, "is in no man's land, more expensive than a games machine, less capable than a PC. Consumers who can afford a computer will buy one, the rest won't spend \$800 on a machine that can't do word processing." At £1,400 in the UK, Envision is several times more expensive.

Some analysts believe first generation machines such as Envision and Pippin could suffer the same fate of other consumer multifunction devices, such as Commodore's CDTV and Philips's CD-i players. However, they were disappointing partly because of lack of software. In contrast, both Envision and Pippin run established operating systems - guaranteeing that far more software is available.

Nevertheless, they may still be ahead of their time. The multimedia home PC platform is still evolving as technology advances and new standards emerge. In contrast, most successful consumer electronics products, such as audio CD players, have been based on stable commodity-like technology that can be mass produced at low cost.

For that reason, most PC manufacturers assume it will be some time before the home PC ousts the TV from pride of place in the living room.

CLASS OF ITS OWN

Until now, choosing a portable PC could mean compromising on power and flexibility. Elnex's NB-500/1 notebook changes all that. Even the basic specification of the NB-500/1 offers PCI Pentium power and a colour screen. And its modular design means that despite its small size and light weight, users benefit from a wide range of alternative configurations, including an optional CD-ROM drive. This Notebook has been designed to beat the best in the world, matching the versatility and processing speed of much bigger and heavier machines. Its Pentium processing power, multimedia capabilities, upgradeability and performance certainly puts the NB-500/1 in a class of its own.

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Videoconferencing - By Geoffrey Wheelwright

Kingpins focus on a standard

Intel and Microsoft announced plans to work with AT&T, PictureTel and other industry leaders

Videoconferencing is no longer just the plaything of huge corporations with dedicated satellite links - or corporate chiefs with big egos.

It is enjoying widespread use and is even popular enough to be offered as an add-on service to existing personal computer systems.

Consider, for example, the recent joint development work done by leading videoconferencing system developer PictureTel Corporation and personal computer market leader, Compaq Computer - which announced late last year the creation of an add-on desktop video conferencing system for computers using the Microsoft Windows 95 operating system.

Known as the PictureTel Live PCS 200, it is based on the popular H.320 videoconference standard, and is PictureTel's first product designed for use on personal computers running Windows 95. Its distribution in the US started in late November and it has a suggested US list price of \$1,995. The company has pledged to make the PCS 200 available outside the

US in the first half of this year. The PCS 200 operates over basic rate interface ISDN digital telephone lines and is interoperable with all other PictureTel desktop and group videoconferencing systems, as well as standards-based systems from other manufacturers.

The unique thing about it, however, is that PictureTel and Compaq designed it together for Windows 95 - an unusual collaboration between PC and videoconferencing companies. PictureTel is also including its LiveShare Plus data conferencing software - to enable remote users to share computer applications, transfer files and use a whiteboard and common clipboard - as part of the package.

Meanwhile, the two kingpins of the PC design business announced in January that they would focus on helping to standardise PC-based videoconferencing technology. Intel and Microsoft announced plans to work with AT&T, PictureTel and other industry leaders to achieve interoperable, standards-compliant parameters for conferencing on the PC. The

two companies say this work is intended to help ensure that conferencing-enabled PCs can connect to each other and with multipoint services using industry-standard multipoint control units (MCUs), providing the same kind of simple connections people experience with the telephone today.

This standardisation will be around T.120, the International Telecommunications Union (ITU) standard for data conferencing, which was ratified in 1995. The companies say T.120 implementations are being designed by leading conferencing vendors for inclusion in their products.

Intel and Microsoft, in co-operation with the International Multimedia Teleconferencing Consortium (IMTC), intends to host a series of interoperability events throughout this year to test and resolve interoperability issues between desktop conferencing products, multipoint services, and application providers. The first event, scheduled for March 25-27 in Santa Clara, California, will test vendors' T.120 implementations to ensure interoperability across a wide range of products. Some 250 companies have been invited to the event, including all members of the IMTC.

"Microsoft supports T.120 and intends to work with the industry to achieve interoperable T.120 solutions. We intend to provide a base level connection for widespread conferencing applications by multiple vendors," said John Ludwig, vice-president, personal systems division at Microsoft. "The ability to collaborate and share applications will significantly enhance the productivity of users of the Windows 95 operating system."

The new British Telecom centre in Suffolk brings together 230 specialists

It is not only American companies that are doing leading-edge work in videoconferencing. British Telecom, for example, last year established what it calls the Centre for Human Communications at BT Laboratories (BTL), Martlesham Heath in Suffolk.

According to Dr Richard Nicol, who heads the new centre, its work goes beyond just the specific design of some-thing such as a videoconfer-

encing system. "BT has long recognised the importance of leading technology to suit people rather than the other way round," he says. "Our aim is to ensure that people get the best from BT's technology and that BT in turn has the best technology to offer. We have created a power-house that is unique in the world. We will focus on the challenge and opportunities presented by convergence between video and voice systems, between television and telephony, and between information and communications."

The centre, part of BTL's Advanced Applications and Technologies unit, brings together 230 people working on video telephony, videoconferencing, video and speech coding, face recognition, speech and speaker recognition, text-to-speech conversion, network-based call answering, interactive speech services, remote presence, 3-d video telephones, multimedia databases, virtual reality, human factors consultancy (including user and task analysis), usability valuation, user-centred design and the "psychology of telecommunications".

For those who do not want to wait for the results of all this research and development



Collaboration: PictureTel, a world leader in the videoconferencing industry, is doing joint research work with Compaq, the PC market leader. Pictured here is PictureTel's Concord 4500 system

work - or only need videoconferencing facilities once in a while - service bureaux are starting to offer videoconferencing as part of their range of business services - along with courier services, photocopying, faxing and desktop publishing. In the US, for example, some branches of the popular Kinkos office service outlets are now providing a videoconferencing service.

Kinkos provides for both "Point-to-Point" conferences with one other site, or a "mul-

tipoint" conferences with as many as seven different sites at once. The company says that during a multipoint conference, the site which is speaking is the one that every-

one else sees and hears. If another site has a question or comment, the picture and sound are apparently designed to automatically switch so that everyone sees that location.

Network services

Doubts over links between electronic trading networks

Message formats can change in small but significant ways as they pass between networks, writes John Kavanagh

Network services and their big customers are going through mixed feelings about how easily companies should be able to send business transactions from one network to another.

The issue is a big one for organisations seeking to gain the administrative savings and just-in-time ordering benefits of electronic data interchange. EDI is the exchange of routine business documents, such as orders and invoices, between trading partners' computers with little or no human involvement.

In most European countries there are at least two organisations offering EDI network services: typically, the national telecoms monopoly and a couple of US international services. In the UK, the most open telecoms market, there are half-a-dozen, plus others selling services based on them.

Network services receive transactions from customers and direct them to the right destinations. EDI users thus avoid the need for separate links to every electronic trading partner: they have just a single connection to a commercial service.

Network companies initially kept their services separate. This meant a company trading electronically with customers which used different networks had to have a connection to each one. Then, in the early 1990s, after much public acrimony the main services in the UK agreed to provide links between their networks.

A study by the UK Network Liaison Group, made up of network companies and user bodies, shows that the links are free of charge, have technical support 24 hours a day and that business transactions are delivered from one network to another immediately in almost all cases and always within 15 minutes.

Even so, there are mixed views on the efficacy of the links - and on whether they are being actively promoted by either the services companies or big users.

The Network Liaison Group says the links between the network services have a big role to play in expanding electronic trading, to the benefit of business in general - but describes the current link facilities as "technically fairly basic".

The problem is that several different linking methods are used, so message formats can change in small but significant ways as they pass between networks.

The Network Liaison Group points for example to the fact that although audit trails are provided from end to end the audit information is not always presented in a service supplier's usual format. This can inconvenience its customers.

Mr Thorpe also sees a need to sort out the issues of inconsistent address formats and end-to-end auditing. But he says the days when the main suppliers in the UK jealously prevented their customers from communicating between networks are over.

"The market has come to realise that interconnection is good not only for users but also for suppliers, because it enlarges the whole market," he says. "Transmission has become a commodity service: our emphasis now is on delivering business productivity. The real obstacle to electronic commerce is the difficulty of changing business processes, both inside a company and between companies, to take full advantage of EDI."

Association. "Big users, in particular, find it useful to get their mail sorted."

John Pennell, founder of EDI specialist Meadowhouse Bar-Laser, says users can get round some of these issues by special programming of their EDI software packages - but he adds that this can be "a massive problem" for big mainframe computer users with many electronic trading partners scattered across several networks.

David Kalu at the Article Number Association agrees. "This is one reason why some big companies say their suppliers must connect via a specific network," he says, adding, half-jokingly, "I wouldn't be surprised if network companies introduced services such



John Thorpe of GE Information Services: 'Our emphasis is on delivering business productivity'

as message sorting to discourage users from linking to rival networks and using the interconnections."

The European Electronic Messaging Association is scornful about the service suppliers' whole approach.

"We've surveyed network services across Europe and found little or no interconnection," says executive director Roger Dean. "The UK is slightly better but the links here are still mainly proprietary. In Europe, services link using the X.400 messaging standard but they don't offer the X.435 EDI extension. This is all because suppliers want to hold their market share."

John Thorpe, managing director of network company GE Information Services, agrees that interconnection in Europe is patchy; indeed, where links between international services exist they are made in the UK or the US, so traffic between users in France or Germany might first travel across the Channel or even the Atlantic.

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Vertical sidebar on the right edge of the page containing various advertisements and text, including 'range of' and 'fresh approach'.

Keeping the network running - By Nuala Moran

A range of strategies and options

Rather than dreading outsourcing as the loss of empire and status, IT managers are now assessing the contribution it can make to their operations in the same way as they might judge a new piece of hardware or an improved networking technology.

"Outsourcing is no longer something that is done to the IT manager by the finance director," says Dr Ian Dewis, principal of CSC Index, who has just concluded a study of attitudes to, and experiences of, outsourcing among the IT directors and managers of 600 companies worldwide, including 200 leading US corporations.

"Outsourcing has gained respectability. There is a growing awareness that you can not do everything in-house, and that outsourcing must be considered as part of the IT strategy," says Dr Dewis.

In fact, outsourcing has become a misnomer, he says. "It is now as much to do with bringing in activities and assets as outsourcing them."

Kodak outsourced important components of its computer systems in 1989 and this was a watershed event in the development of a robust and thriving outsourcing services industry. Six years later, the US



IT
OUT

Outsourcing IT services

An option allowing user companies to focus on core competences while improving their IT operations

market exceeds \$10bn and is growing at 18 per cent a year, while the European market is growing by 20 per cent a year. Dr Dewis said South Africa and Australasia were poised to join the outsourcing rush, taking advantage of the experience of US and European companies.

In *New Perspectives in IT*

Outsourcing of services should be an explicit part of the IT strategy, not a substitute for it, says new research based on the experience of 600 user companies worldwide

Outsourcing, Dr Dewis draws on interviews with 600 IT executives to demonstrate how to structure and implement successful outsourcing relationships. Among the deals he has studied are Kodak's with IBM, Digital and Businessland; British Petroleum's with Sema, Science Applications International Corporation, and Synordia; Pacific Bell Telephone's with Arthur Andersen; and Delta Airlines' with AT&T GIS (which has now reverted to its former name, NCR).

The research was carried out at the request of the 600 companies, which are all members of the CSC Index Foundation, the independent research arm of Computer Sciences Corporation, one of the leading outsourcing companies.

According to Dr Dewis there are four categories of outsourcing. The first two - total outsourcing and selective outsourcing - are well established, while transitional outsourcing - where ageing systems are outsourced to focus attention on the creation of a new system - and transformational outsourcing - where the outsourcing company builds and

runs the new applications - are just emerging. All four types are growing steadily in Europe and North America, and are showing signs of developing in the rest of the world.

The motivation for outsourcing is changing from an initial focus on reducing costs and improving service levels. Now companies cite a variety of reasons: a desire to concentrate on core competences; as a means of achieving change; to fix information systems or processes that are perceived as "broken" (a surprisingly high number of organisations are opting for outsourcing for this reason); to provide an infusion of financial resources.

"Several companies have recently outsourced IT to cash in on the value of their older assets in order to secure funding for new ones," said Dr Dewis.

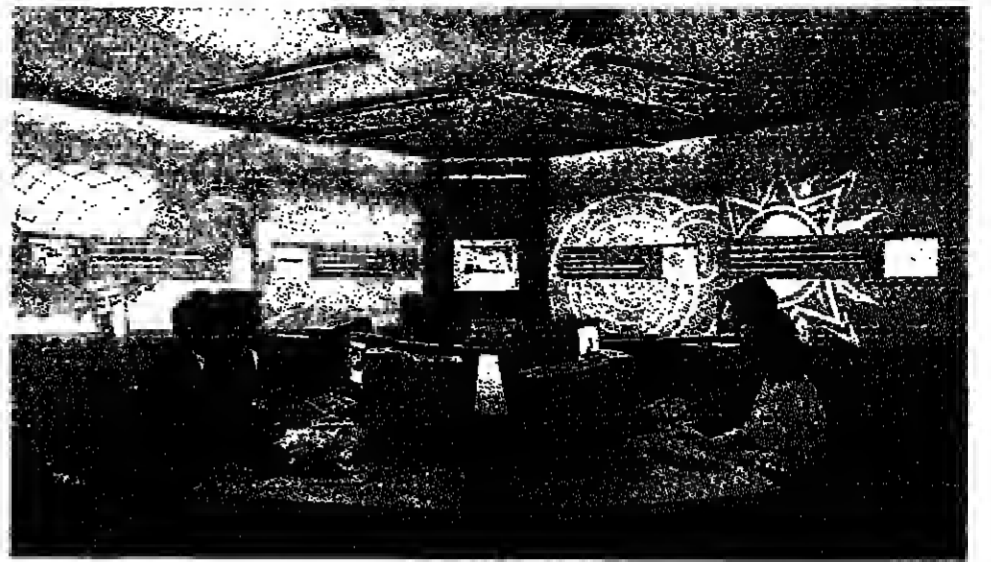
As experience of outsourcing accumulates, and the market matures, perceptions of it are changing, too. Until recently, most IT staff thought of out-

sourcing primarily as the kiss of death," said Dr Dewis. "Now the tables are turning and staff welcome being part of an outsourcing deal."

In the past, many IT managers believed that outsourcing amounted to giving away the strategic assets of the company. Today it is seen as an effective option for dealing with many of the pressing problems facing the IT department, such as breaking free of the shackles of legacy systems and people.

However, warns Dr Dewis, outsourcing must not be viewed as the panacea for all inadequacies.

As the market matures, the nature of the outsourcing contract is changing from a simple agreement to buy certain services. For example, British Gas and Amalid recently set up a joint venture to develop and run the utility's billing system, and sell the service to other companies; Delta Airlines hived off its IT operations into TransQuest Information Solu-



The remote systems management centre at Siemens Nixdorf, Bracknell, providing pro-active support for all elements of companies' network information systems - see also report on helpdesk, pages 18-21

tions, a 50-50 joint venture with AT&T GIS (now NCR), which will provide services to Delta and sell the same services to other airlines; and Swiss Bank acquired a stake in Perot Systems as part of an outsourcing deal, with the objective of selling outsourcing services to other financial services companies. "The range of potential motives for IT outsourcing makes it ever more critical for a company to identify why it is outsourcing. The factors that determine success will be

vastly different depending on the strategic intent," said Dr Dewis. His research has identified three kinds of strategic intent for IT: improving the operation of the IT department; extending the impact of IT on the business; and the desire for commercial exploitation of IT resources and industry knowledge. "Failure in outsourcing can often be attributed to a mismatch between the strategic intent of the client and the corresponding motivation of the vendor," said Dr Dewis.

In several problem relationships he studied, the motive was increased impact or commercial exploitation but the customer structured the contract around improving IT operations.

"Our research shows how the purpose and nature of IT outsourcing are changing, and illustrates just how varied the strategies and options have become," Dr Dewis concludes. "There is no longer a 'one-size-fits-all' approach to IT outsourcing."

£75m outsourcing deal - report by Michael Dempsey

Origin enters premier league

A \$1.2bn company employing 10,000 people in 27 countries has joined the top league of outsourcing contractors

taken a contract from right under the nose of EDS in Dallas.

Origin runs a data centre on behalf of McDermott, the energy company, under a \$30m-a-year contract. The centre is located in EDS' home town of Dallas. From his Lindhoven office, Mr Overaker is emphatic that Origin "has something new to offer as a truly European player. I think we are a good European alternative to other contractors".

Outsourcing is often feared by incumbent IT staff, who perceive it as a thinly-veiled exercise in cost-cutting and job reductions. Mr Overaker

claims Origin will steer well clear of this kind of practice, keeping the workforce on-side in the interests of the customer.

Grundig, the German consumer electronics company, and Daf, the Dutch truck-maker, have also recruited Origin to run their IT operations this year.

ICI is covering its bets with the move towards outsourcing. Richard Sykes, the group IT manager, reports directly to the ICI group finance director. A scientist by training, Mr Sykes describes his career with ICI as "20 years of business management". He points out

that while Origin has gained control of the historically important Runcorn computer centre, ICI itself retains control of future computing strategy.

"The £75m contract does not extend to ICI's actual IT budget. At ICI, we don't regard the provision of IT as a core competency - others can do that better. But the development of an IT strategy and the method of delivering that strategy is a key competency," he says.

The international corporate IT weight of ICI is spread across several outsourcing contractors. When ICI demerged its Zeneca pharmaceuticals and agrochemical unit in 1993, the company needed to split the voice and data telecom network that serviced both operations. It would have cost

Network Services was awarded a \$15m three-year contract to handle ICI's telecoms. But Rascal paid \$3m for the network assets. Added to the potential spend on dividing this up internally, ICI effectively saved \$8m. Meanwhile, ICI Paints has outsourced to CSC in western Europe in a £30m deal. In North America, ICI Films employs EDS.

Half a dozen ICI personnel from the Runcorn site will remain on the company payroll to oversee the crucial Service Level Contract: an SLA stipulating precisely what the customer expects, is vital to any outsourcing deal - not that Mr Sykes expects problems.

He has fulfilled his objectives of preventing redundancies and managing change within the IT world.

Recruitment - By John Kavanagh

Fresh approaches are emerging

Once people have joined, motivation rather than pay is the main factor that makes them stay, employers and recruitment agencies say

Separate shortages of skills are forcing companies into new approaches to recruiting, training and motivating computer staff as systems projects are re-started after the recession.

IT staffing is a special case, because "IT" people have always tended to see their careers being in IT rather than with a particular employer. The latest annual *IT Skills Trends Report*, published by the Institute of Data Processing Management, shows that 53 per cent of computer staff expect their next job move to be to a new employer - and 44 per cent expect to move within 12 months.

Phillip Virgo, the report's researcher, suggests focusing recruitment effort on people whose personal circumstances are likely to make them stay.

"Those whose health or disability problems of their own or in members of their family are taken into consideration can display well above average loyalty," he says.

Local people with mortgages and children at school, especially mothers returning to work, are worth targeting. Mr Virgo says. Local graduates who have lived at home and gone to the nearest university might also prefer a local company. His point here is that it is not necessarily best to focus simply on people with the skills immediately in demand - or on young white-kids.

Problem of age discrimination

Age discrimination is an issue in an industry in which many IT teams regard people over 35 as "past it". Yet the Institute of Employment Consultants says that more than 25 per cent of companies would fill vacancies twice as quickly if they did not specify age limits, and a further 57 per cent would fill jobs 50 per cent earlier.

Gary Ashworth, the institute's president who is also managing director of Abacus Recruitment, says age discrimination just keeps the problem going, because teams get younger and employers then say that an older person will not fit in.

"People complain about skills shortages but they create the shortages statistics themselves if they specify an upper age limit, because they're aiming at a much smaller pool of people," Mr Ashworth says.

Once people have joined, motivation rather than pay is the main factor that makes them stay, employers and

recruitment agencies say. Contractor rates might be growing at between seven and 11 per cent a year but employers are holding down pay rises for permanent staff.

"In the more inflationary 1990s it was felt that you had to pay certain rates to get IT staff, but employers now regard IT as no different to other activities and are looking at all costs very hard," says Colin Osborn, associate director for personnel at IT services group CMG.

Tony Reeves, chief executive of IT recruitment group Delphi, agrees and says motivation is now the big issue - especially for companies which still insist on going for younger staff.

"Younger people, in particular, want to keep pace with technology - and if necessary they'll do it by moving on," he says. Mr Reeves points to training as all-important here, a view supported by a survey of 1,100 members of white-collar union MSF. Almost 90 per cent said training increased their motivation, including 52 per cent who said it had a great effect. More than 95 per cent said it improved their job satisfaction.

IT managers have heard all this before and point to the risk of losing young people in particular once they have invested in giving them training and experience.

But a complete rethink is needed here, according to some in the industry.

"Companies have traditionally been unwilling to train because of fears that their staff will then go to another employer," says David Bevan, chairman at IT recruitment company, Hunterskil. "However, these days many people are leaving to become contractors instead. The biggest



David Bevan of Hunterskil Howard: 'Many good people are leaving companies to become contractors'

source of new skills is now former contractors.

The shift is in line with trends towards flexible working, fixed-term permanent contracts, contracting work out and so on. So, if IT departments are looking at flexibility, they must expect the same from staff and see that it is in their own interests to give training. The staff might still leave but the

employers are developing a pool of people for the whole market - people who will very likely end up bringing their training and knowledge of a company's systems back to that company as contractors."

Phillip Virgo, author of the *IT Skills Trends Report*, has an equally radical proposal: employers in an area could get together to develop or commission IT training which is relevant to all of

FT-IT Recruitment

Senior positions in the converging worlds of information technology and finance appear in the FT's weekly IT Recruitment section, published in UK editions each Wednesday and international editions each Friday. Also available on the World Wide Web at www.FT.com

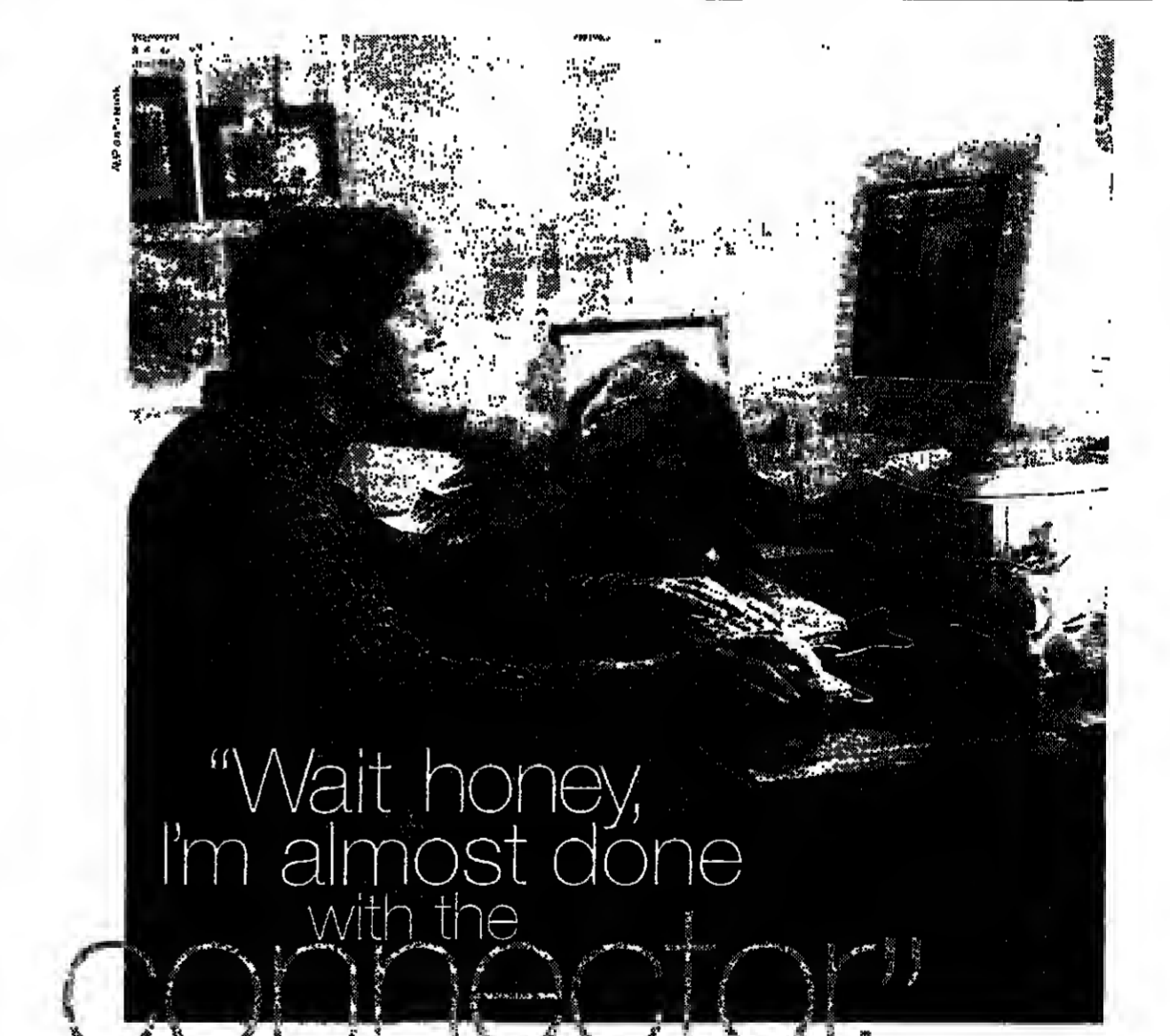
them. This would ensure that training closely matched local needs and costs would be shared while a pool would be created of trained people who might at least stay in the area and move between the sponsoring companies.

Trends among staff to become contractors and among employers to contract work out leads Mr Virgo to highlight a need for skills audits to identify skills which are needed among permanent staff and tasks that can be farmed out. Training, motivation and career development can then be directed accordingly at the key staff who must be retained.

Leeds Permanent Building Society developed skills audits down to a fine art and won a British Computer Society award in 1994. It introduced the society's Professional Development Scheme, which plans and monitors individuals' training and experience, and linked it to the personnel system. The results included better planning of training and recruitment to meet needs, a £100,000 saving from better organisation of training to take advantage of block bookings, and higher staff morale - even though career movement was static.

The staff were motivated by the fact that the organisation was clearly committed to their development.

These and other proposals are still generally in their infancy, but there is a need for urgency. "Employers adopting new approaches are still in a minority," says David Bevan at Hunterskil. "But these attitudes must become prevalent or the jobs market will die."



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Hot spots: helpdesks and support centres

The helpdesk has suddenly become the hot place to be. Forget the drab, untidy corner where "support" staff were once consigned to a despised limbo - the modern helpdesk is a lively hub, buzzing with activity, staffed by valiant heroes whose expertise helps keep the show on the road.

In some places - for example, outsourced support organisations for whom the helpdesk is a "bread-and-butter" function - the support centre has a fevered atmosphere similar to a telephone-sales room, with targets, queued calls and the "resolution count" of solved problems on display for all to see.

As businesses become more reliant on PCs, the need for technical support is vital. However, as machines and systems become more complex, the harder they are to use, says Duncan Brown of the market analyst company Ovum, and author of the *Ovum Evaluates* report on helpdesk tools.

"The main issue is the technology paradox: the fact that technology - supposed to make our lives easier - actually becomes more complex, and the users become flummoxed when they fail," says Mr Brown who is not convinced by the argument that users are becoming increasingly sophisticated about complex systems.

"We repeatedly see the results of making technology available to non-technical users, especially where IT is a part of the job - but not the core."

The customer could be internal or external. The helpdesk devised for internal users of information technology with computer problems has provided a highly adaptable model for the "customer-service desk".

Utilities and other large companies have been quick to adapt the idea of problem-tracking, using a database of solutions. There are an increasing number of helpdesk tools that deal with both IT and customer-service areas.

"We tend not to make a distinction between the applications, although some solutions on the market may address one area more than another: some, such as Vantiva, sell to both," adds Mr Brown.

His report estimates global revenues for this corner of the software industry to be about

More help to keep the show on the road

Time spent at the helpdesk front-line is now recognised as an ideal grounding in both information technology and the core business in which it is used. The helpdesk and IT service centre is something that business managers should care about, discovers Claire Gooding



Software at work

Here, and on the following two pages, FT writers examine the role of the helpdesk



As businesses become more reliant on PCs, the need for technical support is vital. Sainsbury's uses ServiceCentre from Peregrine Systems to manage its helpdesk. Report, Page 20

\$280m in 1995, growing to \$813m by the year 2000. "As a good indicator of the level of growth, most of the companies we looked at were growing at 100 per cent annually in 1994 and 1995."

Helpdesk tools in both markets have taken advantage of IT developments such as computer-telephony integration (CTI), open systems, client-server, and even artificial intelligence (AI).

There are 170 different solutions sold for small and large users; some are off-the-shelf solutions, others modular and highly customisable. There is great variety, too, from call-logging and call-management tools to knowledge-based tools which use AI or neural networking.

Open systems and client-server technology have affected both the environment in which users need help (and

more of it, in a distributed environment), and the helpdesk tools themselves.

Increasingly, they use Windows front-ends, and are able to operate in a mixed environment.

The key is to have a single source of contact, with all problems channelled through one point, according to Carter Lusher, a Gartner Group analyst and expert on helpdesks: "That doesn't mean that there is one big call centre - it could be multiple-tier helpdesks, but the user has only one help number to call."

"It's important to have one point of contact with distributed computing. With client-server systems, end-users might have Unix/Motif, Mac or PC, and having one point of contact puts the responsibility for determining the cause of the problem in one place. In the helpdesk, where it's their

job."

Answering a broad range of queries puts pressure on expertise and skills. Some organisations keep a sense of excitement and urgency at the internal IT support desk by passing on specialist questions - on, for example, iron mainframe computer performance - to remote experts "on tap".

The US electricity supplier, Entergy (see report, right) demands an answer within three minutes from the front-line staff in its "command theatre", otherwise the problem is escalated to the next level. Swift and courteous service to PC users is vital, when so many non-IT experts end up relying on their PCs for everyday tasks.

"Good 'people' skills and good telephone skills come before technical skills - it's a public relations role, because

the people calling are often angry or frustrated, so trouble-shooting skills are important," says Mr Lusher.

Computer skills and people skills have not always gone hand-in-hand, however. Time spent at the helpdesk front-line is now recognised as an ideal grounding in both IT, and the core business in which it is used: coding is no longer the only skill that matters in IT.

Training and support were sometimes considered to be jobs for second-raters, but in fact provide two-way education for IT workers. Teamwork and good communication skills count almost as much as IT skills, especially in customer-service. For people - and software suppliers - with the right skills, there are tremendous opportunities in specific market niches, including customer service, outsourcing, and training. The Helpdesk User Group



Carter Lusher: "It's important to have one point of contact with distributed computing"

(HUG), a central forum for everyone in the business, is setting up a sister organisation specifically for insurance and healthcare helpdesks. The group has nearly 6,000 member-companies worldwide, covering 20 countries, 18 of them in Europe.

"The number of 'fix it' calls are on the decline as people get higher quality products, but there is an increase in what I call 'just-in-time consulting'," says Malcolm Fry, an independent consultant on customer-service support, who is on the advisory board to the international Help Desk Institute, HUG's US counterpart.

End-users now have access to end-user tools such as PowerBuilder, so now the typical enquiry is: "I've written 15 lines of code and it's not working".

"With Web usage spreading, there's a shift in the tools requirement: you need desktop imaging and the ability to work two machines together as one, walking through the program."

Such tools may help to bring down the total cost of IT, 80 per cent of which clocks up after installation, according to Bill Kirwin, Gartner Group's vice-president and developer of the widely-used model for the total cost of IT ownership.

Electricity industry application

Service with a smile

The helpdesk can be a good place to get to grips with the way a company operates, writes Claire Gooding

At Entergy, IT support is far from being a dead-end job. Phillip Orton is back at his desk at 7pm, while everybody else is celebrating with a fellow member of staff who is retiring after 44 years in the company. Mr Orton is director of computer operations at New Orleans-based electricity supplier Entergy.

"If you object to being on call, you don't belong in a job like this," he says. Charming on the telephone, relaxed, and remarkably tolerant of being bombarded with questions, it becomes obvious why he is in charge of a "command theatre" (no humble "helpdesk" here) which has become a sought-after career step for IT staff in Entergy.

"If you go back three years, you begin to see dramatic shifts in the way helpdesks were deployed," he explains. "Services radiated out from a central mainframe, and that began to change, because of the huge uptake of personal computing and the PC, the change in the telecoms network architecture, the differ-

ent communications protocols, configuration, management and the piecing together of systems supporting different devices.

"The way the applications were being built also started to change along with distribution throughout company. The groups then became inter-dependent as well, because the environment couldn't stand on its own - the help had to be integrated in the same way that the services had become so."

Entergy looked at varying levels of consolidation and discovered that the number of disciplines and functional groups were growing to support the way applications were delivered. "The functions were growing and changing, in the way that a helpdesk activity got involved: it was a matter of what you need when you need it - check and adjust all the time - people technology, staff levels, whatever needed adjustment."

The company looked at the consolidation of 15 helpdesks, with the help of the "Ultimate Helpdesk", a committee of 12 people who represented all the different business units and helpdesks. They did a requirements specification, scanned the industry and examined several solutions including Infoman and KBMS.

Continued on facing page



Entergy's well-equipped "Command Theatre" helpdesk has become a sought-after career step for the company's IT staff



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Solutions for a small planet



London Electricity's helpdesk: Total Gas Marketing is using LE to service the response to an advertising campaign

■ Bureau service - By Claire Gooding

Customer services shake-up sparked electricity sideline

Helpdesks need not stick to just one area of expertise: London Electricity is helping to sell gas

A sideline to electricity, London Electricity now sells helpdesk services. Its centralised customer-service centre proved such a success that it set up a bureau service, and now its first client, Total Gas Marketing, is using LE to service the response to an advertising campaign.

Jon Gritten, business development manager at London Electricity, plans to sell expertise and customer services, such as call centre services, from the regional electricity company's customer operations centre, set up in Bexley Heath early in 1995.

Previously, LE's own customers had experienced problems: "We weren't giving a consistent quality of ser-

vice - it depended on which one of our five different call centres the customer rang, and who they got on the phone. So we amalgamated the five centres," explains Mr Gritten.

This meant there was a clear brief when LE started looking for helpdesk software. "Whatever the electricity issue was, they could ring one number and the person would respond quickly, and secondly would be able to resolve the difficulty. Whatever the issue was, the aim was to reply in one call."

The speed of amalgamation, over a six-week period, cut down the number of potential suppliers. LE looked at five vendors supplying packages that dealt mostly with internal customers, and chose US company Inference, from Novato Ca, whose CBR2 product uses "case-based reasoning" to store and retrieve information for IT helpdesks and customer-care call centres.

It is expanding rapidly worldwide, and has a UK operation based in Slough.

"Inference's response was

the most impressive and responsive, and they offered us precisely what we wanted at the right price, within the six-week deadline," recalls Mr Gritten. "The account manager gave us excellent support, giving us all sorts of support in the early days."

London Electricity uses a mix of PCs, with the customer information held on an Amdahl mainframe. The purpose-built centre with its new technology required an exacting training programme - which last year won an award for excellence in training.

"It is very comprehensive - every operator receives five weeks' training before starting, with an update and assessment every eight weeks using video and other techniques," says Mr Gritten. "The objective is to make sure that every single operator gives a constantly high level of service. It is all centred on giving the customers the correct answer rather than keeping them hanging on, or passing

them on to someone else."

LE now receives 37,000 calls weekly, whereas the five call centres used to receive 50,000 calls weekly.

"We deduced we were giving a much better level of service in answering the query first time around," says Mr Gritten. "From one centre, we are able to answer the query and give them the correct information. We do independent customer satisfaction surveys, and the most recent one six months ago - by NOP - gave us a 91 per cent level of satisfaction with the call-centre centre. We're striving to increase that still further."

Graeme Boyd, Total Gas Marketing's sales and marketing manager, willingly recommends the service. "We understand that this was the first time that London Electricity has used the Customer Inquiry Centre for an external organisation. We were pleased with the speed of response and the comprehensive IT and telecoms approach LE was able to provide."

■ Rapid help for PC users - report by Marcia MacLeod

Experts only a phone call away

A freephone number connects customers to ActionTrac's experts in the US

Picturing this scenario... Racing to beat the clock, your 20-page report is nearly finished. You just have to transfer some figures from the spreadsheet, do a spell-check, print it out, and... the computer goes down at the 11th hour. You call the IT department, but no one is available. The frustration is indescribable.

But now there is a PC Superman to help: ActionCall. This service, offered by the US company ActionTrac, provides 24-hour, 365-days-a-year support for all PCs and their software systems.

The service aims to solve problems with a wide range of hardware, all the main operating systems, including Windows NT and Windows 95, Novell, DOS, OS/2 and Macintosh System 7.x; leading applications packages, including desktop publishing, graphics, project-scheduling and integrated software suites; utilities, such as Anti-Virus, Backup and Scan; add-ons, such as modems, CD-ROM and fax links; plus multimedia

systems and the Internet.

Customers of ActionCall, which was introduced in the UK a year ago, call a freephone number which connects them to ActionTrac's experts in the US.

So far, the company claims a 100 per cent "solve" rate for callers' problems - most are sorted within eight minutes.

ActionTrac has seen its customer-profile change, too. Initially the customer list was comprised of mostly non-technical, mainly financial, management; now 20 to 30 per cent of contracts are being made with IT departments.

Third party desktop support was previously seen as the "enemy" by IT departments, admits Simon Anderson, managing director of ActionTrac (UK). "Now IT departments are more focused on areas which are business critical, such as internal networking or replicating outdated kit. In-house IT departments are coming and saying 'take away the desktop application and let us work on our core business'."

"Technical staff, busy on a large project or major IT failure within the organisation, often don't have time - or don't want to take the time - to sort out an individual's problem with word processor,

database or spreadsheet," says Mr Anderson.

Coulter Electronics, a Luton-based manufacturer of particle-counting instruments, uses ActionCall to back up its internal support. "We have one person supporting upwards of 200 users in the UK," explains Peter Arnold, management information services operations manager. "We turned to ActionCall last November to smooth out some of the peaks and troughs of support."

"Although we have in-house

Flexibility in payment terms is another benefit of ActionCall

expertise, we do have problems which even they cannot cope with. So if there is a problem our in-house staff cannot deal with, they call ActionCall, which in turn talks directly to the person having the problem."

Pirelli Cables, which makes fibre optic and other cables at six sites in the UK, signed up with ActionCall in April 1995 to help the IT department to cope with an unusually testing period.

"We were introducing a new network, switching from stand-alone PCs with a number of different software packages to a standard configuration based on Microsoft," explains Paul Freemantle, IT manager. "While our IT staff was working on the transfer, I didn't want them to be diverted from their main task - but we still had to support desktop users, particularly those being given Microsoft software for the first time."

Pirelli Cables signed up 500 users throughout its six factories, but because Freemantle did not know how much help engineers would need, he signed on for 50 calls a month, rather than on a per-user basis. Some leeway was built into the contract so that if Pirelli Cables used less than 50 calls it could get some free service later, and if it called more than 50 times a month, it would pay ActionTrac extra.

This flexibility in payment terms is another benefit of ActionCall. The published tariff is £149 a year for a single user, or about £14 £15 a call. However, substantial volume discounts bring the annual fee down to about £10, or customers may pay for a pre-determined number of calls as Pirelli Cables did.

ActionTrac is on 0800 354000.

■ Retail automation: application report - By George Black

A helpdesk for Europe

New software will enable problems to 'follow the sun' from one region to another so they can be worked on around the clock

BP OIL, part of the UK's largest company British Petroleum, is introducing a helpdesk across Europe, based on software from Intercom Data Systems (IDS).

The scheme has started in Germany, where it will support point-of-sale and back office systems being installed at 1,300 petrol stations. It is in Germany that BP's long-running Retail Automation Project (RAP) is furthest advanced.

The petrol station systems and the helpdesk are also now being adopted in the UK, with France, the Netherlands and other European countries likely to do the same soon. Whenever RAP is rolled out, it is intended that the IDS helpdesk will follow.

Until three years ago, many of BP's retail systems problems were tackled with fairly cumbersome paper procedures. To alleviate this, the company considered developing its own helpdesk system, but decided against it because it would have been too expensive.

The IDS product was chosen mainly because it was rated as more flexible than the alternatives. Mark Waite, a technical manager with the consultancy Warwick and Sons who has been working with BP on



Until three years ago, many of BP's retail systems problems were tackled with fairly cumbersome paper procedures

implementing the helpdesk, says the IDS software can be easily tailored.

"You can modify it to suit your own business procedures, rather than having to change those procedures to suit the software," he says.

The software was installed on personal computers, first on the Unix operating system and later on Microsoft Windows, at BP's helpdesk in Hamburg, staffed by 12 operators. This function was outsourced two years ago by BP to a local consultancy called Anthros.

The helpdesk keeps an inventory of all the hardware and software in use by its customers. Helpdesk operators can log on remotely to PCs at the petrol stations to try to find

out what is the trouble. They have access to data on all earlier calls which may throw light on the problem.

If they cannot resolve the matter on the spot, they can send a fax from their PC to call in expert support.

The system is linked to Microsoft Mail, so that if there is any serious delay there can be an "escalation" of the problem, by alerting management through an e-mail message.

BP's helpdesk in Germany has already taken 40,000 calls and is now logging them at 1,500 a month. On average, a query takes two days to resolve.

In the next one or two years, BP hopes to be able to integrate its helpdesk systems

between countries, so that experience of handling calls can be aggregated in an international database and solutions shared.

New software from IDS will enable problems to "follow the sun" from one geographical region to another so that they can be worked on around the clock, according to Alan Neilson, IDS group director.

Last year, BP began using IDS's new data mining product called Infotrac, incorporating the Verity search engine, which allows helpdesk operators to input general questions in natural language and get quick responses from the system. Mr Waite says this has been extremely useful, particularly for new operators who may know little of previous dealings on the helpdesk.

The IDS system has proved its worth in spotting trends, says Mr Waite. "Before, it was very hard or impossible to identify these trends. For example, there was a primer problem in the petrol stations which was affecting customer service. When we identified this we were able to go to the suppliers with hard evidence and persuade them it was a real problem. Until then it had only been a gut feeling that there was something wrong."

The helpdesk has also helped BP to keep a tighter rein on subcontractors by detailing the work that needed to be done, he says.

IDS is a privately-owned UK company based at Woking, with an annual turnover in 1994 of £5m. The BP contract has been worth about £120,000 to it so far.

■ Help on demand

Customers count the cost

The helpdesk market has mushroomed rapidly, bringing together so many different strands of technology that every supplier seems to be setting out a slightly different stall. Claire Gooding goes window-shopping

Eighty per cent of the cost of owning a system comes after installation, according to research by the Gartner Group.

Client-server installations may distribute power, but they also distribute the support function, which may exist on an informal basis. Findings suggest that support and administration accounts for as much as 14 per cent of the total cost of PCs. Helpdesk tools offer a way of keeping costs under control.

All the above factors have fuelled a market which Gartner estimates is worth \$45m in 1995 (63 per cent growth over 1994) and likely to grow to \$105m by 1997. PC suppliers such as Dell and Gateway have long known the value of good support in selling PCs. But customers are fast waking up to the fact that the purchase is the beginning, not the end of the speed, with sundry upgrades, extras, education and training, and the need for expert support, even if users only explore a fraction of their system's functionality.

It is not easy to measure the productivity which the PC is supposed to create, although one recently-launched product, DeskWatch Expert, from London-based ProMetrics, attempts to do exactly that. Described as a PC management system, it is a sort of desktop tachometer, reporting back to managers on

productivity and technology issues. Tuned to each user-organisation, it can even suggest corrective action, such as an upgrade, training, or redeployment of resources.

"What is missing is knowledge of how the technology, products and extensions that are behaving and interacting at the desktop," says Bobbie Toulis, marketing manager at ProMetrics. "If this knowledge were available, the helpdesk would be able to provide proactive support to end-users, allowing them to plan resources and address issues before they impact the user."

By a rule of thumb, PCs throw up a high volume of easy-to-solve problems, while "open" multi-user systems and mainframes pose fewer but knottier problems, often involving systems software.

Before client-server systems made it easier to integrate different computers, companies often had dedicated support and a separate problem-tracking application for each in-house system.

Most organisations now choose to cut the overhead by centralising (or even outsourcing) support. Multi-platform computing has brought a challenge to which most software suppliers have risen. In a field which has 170 or so competitors, there is a big gulf between all-encompassing systems that can address the

protocols on every platform, and the plethora of small products at the bottom end of the market. Some modular systems cost anything from £30,000 to £100,000, depending on size of the network, while other companies prefer to buy small components and glue them together in-house.

Client-server systems and the standard solution

By the mid-1990s, companies shopping for helpdesk software wanted adaptable solutions. They looked for software based on Oracle, Sybase, Informix, or Microsoft SQL Server, the industry standards that could cope with multiple environments, according to Carter Lusher, Gartner Group analyst and expert on helpdesk solutions. "Software suppliers provided integration as a service at first, but creation of open gateways opened up the possibility for a number of add-on products and extensions that enhanced the capabilities of the helpdesk - the typical support centre needs access to whole range of information."

Gavin Roach, client-server consultant at IBM, agrees that client-server technology has impacted helpdesks in a number of ways. In the past, support staff might have to log on

and off between different systems they are supporting.

Now, client-server systems can combine a number of different systems and their front ends, all working from one screen. For example, either they simulate the old systems, or support new code which performs the integration at application-level, producing all the information they need from multiple clients and servers through a single screen.

"Intelligent" tools track problems by referring to a database, and recognising "clues" so that the helpdesk staff can track down the appropriate solution which may have been reached and stored on a previous occasion. These products can spot problem patterns and "predict" answers.

Examples include Remedy, Bendata, Asta, Magic Solution and Target, recently acquired by Applix. Artificial Intelligence has found a natural home in the helpdesk, and the expert shell from Slough-based Inference is the basis of several products.

Remedy is widely used in the UK, servicing large-scale sites such as Gervon where two sites are served from one helpdesk, servicing a thousand users. "Inference is interesting because it has re-invented itself from a general purpose AI

Continued on next page

■ Electricity supplier: application report - By Claire Gooding

Handling 4m calls a year

Norweb had to find a way of supporting more than 2m customers from one centre instead of six. It turned to an unusual source, information management consultants TMS

Finding a call centre that could cope with six million calls annually was a priority for Norweb. The UK's north west electricity supplier, recently taken over by sister utility North West Water, has a territory that extends from the Scottish border to north Cheshire.

Centralising customer support for its 2.1m customers in one centre posed specific problems, according to Ken Harrison, Norweb's domestic customer services manager who looks after the new customer centre at Bolton.

"We had recently centralised into one customer centre in Bolton, from six centres scattered across the north-west, as a result of the Littlechild distribution price review. We wanted to be ready for the 1998 opening up of the market, so it was important to build a 'centre of excellence' to ensure that we delivered the right levels of customer service. We had various goals and aims, some set by the regulator, such as missed appointments (we pay £10), but we had our own internal goal: to answer 90 per cent of



Ken Harrison: "We wanted to be ready for the 1998 opening up of the market"

"One of the problems we found when we centralised was that instead of dealing with a familiar location, they were dealing with much larger areas. So it was important to know the appropriate contact for a query in Carlisle, and a similar one in Exeter."

"Norweb needed a tool that would provide a quick-reference procedure. The computer services development manager saw a demonstration of Assistware, now supplied through TMS, one of the UK's leading information management consultancies, and was impressed.

"We had looked at one or two others, but this was particularly user-friendly, and was appealing because it could be supported in-house by ourselves with the minimum of training. At around £30,000 it represented better value than some other solutions we saw," says Mr Harrison.

One application is an internal directory, which had to be searched after receiving a call from a customer. "It's now onto Assistware so that they can quickly click on to the name, and find all the details

they need for contact. Everything's quicker and easier for the customer service representatives," he adds.

Staff from Assistware's Dublin headquarters helped with the installation and configuration in October 1995, and gave project managers a month's training. The system currently runs 10 applications, including the telephone directory, an information system to broadcast the updates in company procedures, and a system to deal with enquiries arising from the £50 rebate for domestic customers that results from the National Grid flotation. This attempts to anticipate the most likely incoming questions and provide stock answers.

"It was easy to install and configure, and in fact the 200 or so staff who use it only took a few minutes' training, each, partly because of the familiarity of the PC and Windows-based environment. We're delighted with it, and we can see from the continuous measurement we perform that it has helped us get closer to our targets," concludes Mr Harrison.

Command Theatre's rapid service

Continued from facing page:

There were only two possible choices that used Entergy's chosen environment of a customisable Unix-based database such as Sybase or Oracle, using Pentium workstations on the helpdesk. It chose Vantive a tool from Santa Clara-based Vantive Corporation, built specifically to integrate with other third-party software.

The hardware supported at Entergy ranges from PCs, routers, customer applications, peripherals, including support for TSO and other mainframe tools.

"Our helpdesk people do more at the first-point resolution point than most; they handle a wider variety of things. If your database of resolutions matches your problems well enough, agents can find resolutions done by other agents

when the repeat problems come in."

Mr Orton analyses the number of calls coming in, and the number of problems electronically passed down to the second level. "We also analyse the individual calls of agents. After the fact, analysis reveals how difficult or esoteric the call might be. If they can't handle it in three minutes they have to pass it on. To keep your service levels consistent they must not jam up the first level; high resolution rate is important."

A morning management meeting looks at flagged problems. Anything that is not routine gets filtered through and the management team does an analysis of problem types and root causes.

Entergy's management approach is unusual: an "officer of the day" is in charge of

operations. "The role was created when we tried to figure out how to manage all the crazy things happening in the environment. We couldn't find a single structure that would fit permanently the way the organisation was changing. We had to find a dynamic organisation, a structure that would move with the environment."

Focus on support

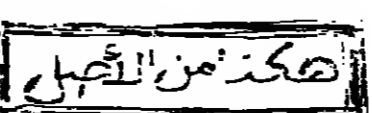
"We didn't want to duplicate responsibility, so the officer of the day took charge: he or she would respond and plug in the required skill and then move it out. There's always someone in-house who has a responsibility to get it solved, though they might have to go back elsewhere."

The red neon announcement above the support centre announces the "Entergy Com-

mand Theatre". Other facilities include large-screen custom-designed monitors, and a conference room.

The emphasis on good support has made this a sought-after place to be: support staff get an inside edge on the way the company operates. The very people who were the most reluctant to take part - the business representatives - now enjoy their three-month stints. Their tasks include follow-up "care calls" to see if internal customers are satisfied with the service.

"Problems get resolved better if there are good relationships. It's absolutely immune to changes in the organisation - it just flows right with it," concludes Mr Orton. "It's definitely improved the attitude to the people who work in that environment; their sense of pride has improved."



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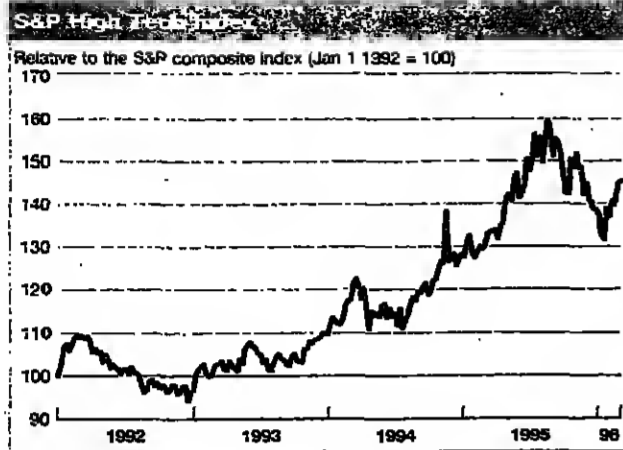
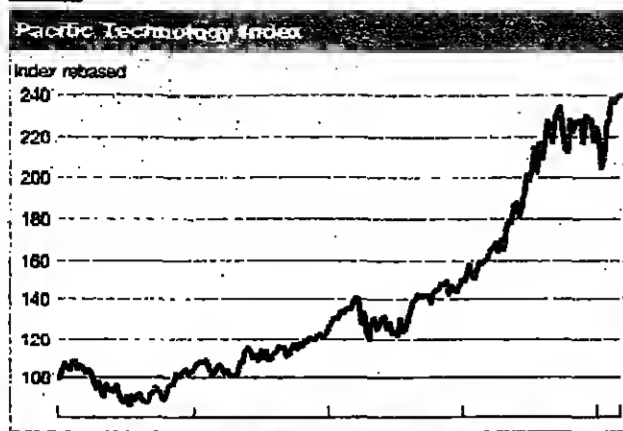
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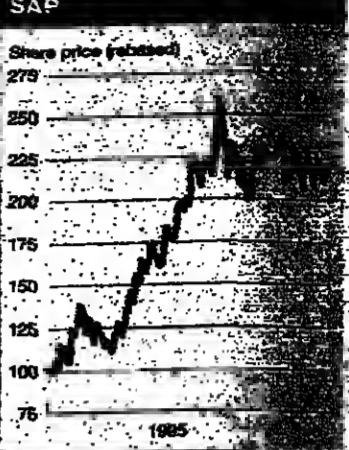
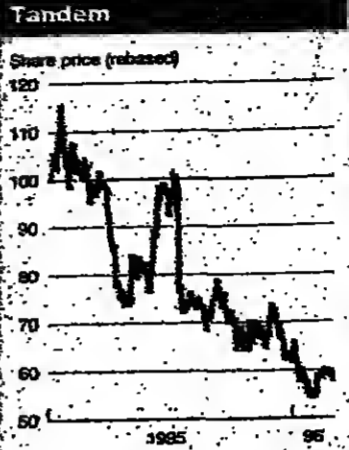
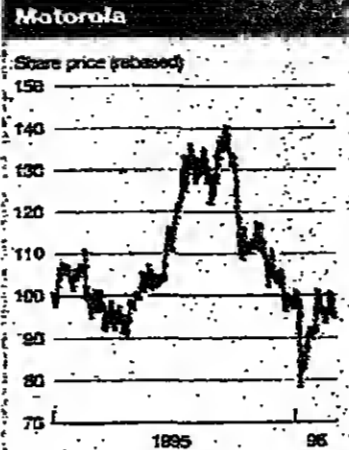
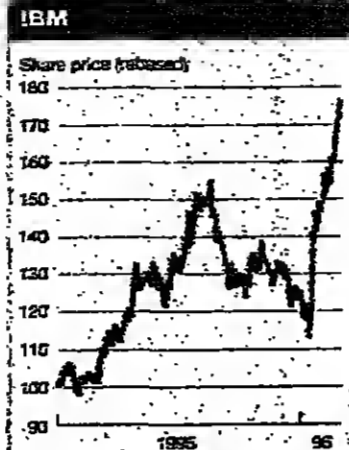
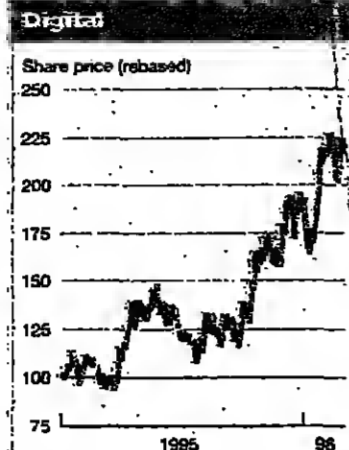
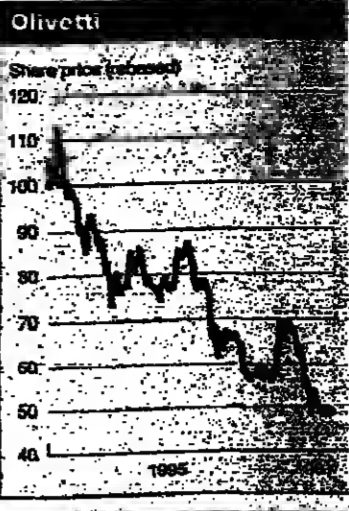
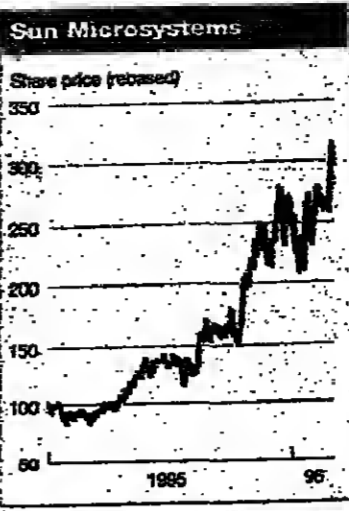
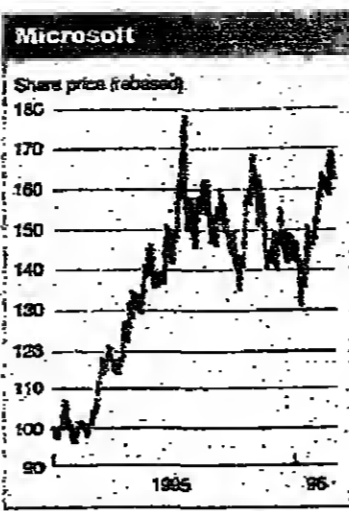
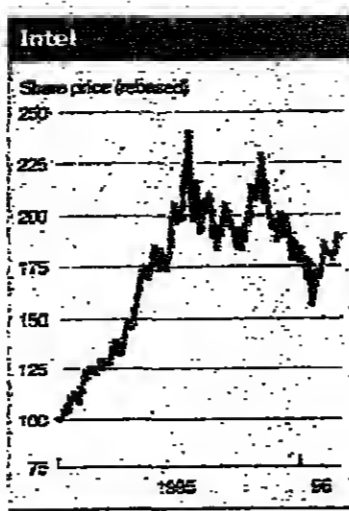
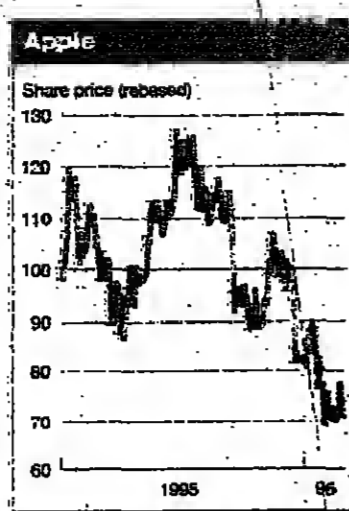
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STOCKWATCH



Source: Enel



Stockwatch comment

IT investors are becoming more choosy

Technology shares have generally improved, writes Paul Taylor

Early 1996 has seen continuing volatility in technology shares on Wall Street although, buoyed by generally healthy full-year earnings announcements, most stocks have bounced back from their early January lows.

There is also some evidence that investors are becoming more choosy. Overall technology shares, as measured by the S&P Technology Index, have comfortably outperformed the Composite since early January.

Among these shares rebounding, International Business Machines' shares have risen sharply since mid-January when the computer company reported stronger than expected full-year earnings. IBM shares closed February at \$128.

Other strongly performing technology shares include Cisco Systems, the networking specialist whose stock has been one of the best performing over the past year, Digital Equipment which has staged a remarkable turnaround and Hewlett-Packard which is continuing to gain share in the personal computer market on both sides of the Atlantic.

Similarly, shares in beleaguered Apple Computer have risen in recent weeks following positive statements from Mr Gil Amelio, the company's new chief executive, who has said Apple's problems could be righted and that it would return to profitability in the next year. The shares ended February at \$28.

The rebound in Apple's share price has also helped boost the Nasdaq, which has a high proportion of well-known technology companies on its lists, including Apple, Micro-

soft and Intel, the US chip maker. Intel's shares, like those of most other semiconductor makers, have bounced back in recent weeks following earlier concerns that the semiconductor boom, particularly for dynamic random access memory chips might be running out of steam. The shares ended February \$51 1/10.

On the computer side, Dell Computers has recovered somewhat since its share were marked lower two weeks ago when the company reported a 49 per cent increase in fourth quarter sales, but acknowledged that this was a disappointment.

Meanwhile, Sun Microsystems continues to be one of the best performing stocks on Wall Street - its shares have more than tripled in value over the past 12 months to \$54 at the end of February.

One of the factors benefiting Sun has been the growth of the Internet. However, most Internet service stocks took a hit last week after AT&T announced it was entering the consumer Internet access market with Netscape Communications and Spyness, two Internet software makers, both slipping. UUNET Technologies, which provides Internet services, also fell sharply following a Bear Stearns analyst's report.

In Europe, Germany's SAP software group continues to power ahead. SAP's shares, which were valued at Dm226 at the end of February, have risen by over 70 per cent in the last year. In contrast, Italy's Olivetti group, still struggling with losses in its PC business, has seen its shares lose almost 45 per cent of their value in the past year.

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